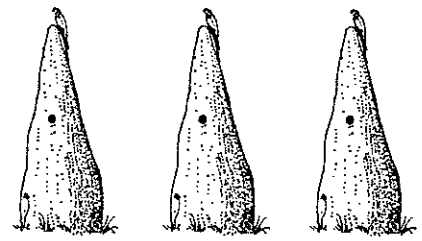


ANTBED

Issue 2

July 1993



An occasional newsletter about the Golden-shouldered Parrot produced by Gabriel Crowley and Stephen Garnett.

This newsletter is for the many people who have shown an interest in the research on the Golden-shouldered parrot since it began in August 1992. The work is being conducted with funding from the Queensland Department of Environment and Heritage and the World Wide Fund for Nature (Australia) and is due to run for three years. In the first issue we gave an outline of the history of Golden-shouldered Parrot research and a summary of what we had done in the first six months. In this letter we describe what we saw in the breeding season and some of the work being done by our many collaborators towards the parrot's conservation.

After nearly a year of research on the Golden-shouldered Parrot we have been able to build up a model for testing. First the distribution of the parrot has contracted and, in at least some of the areas from which the species has disappeared, the habitat has also changed from open flats lined with termite mounds to tea-tree woodland without termite mounds. Other areas from which the parrots have disappeared have a history of heavy trapping.

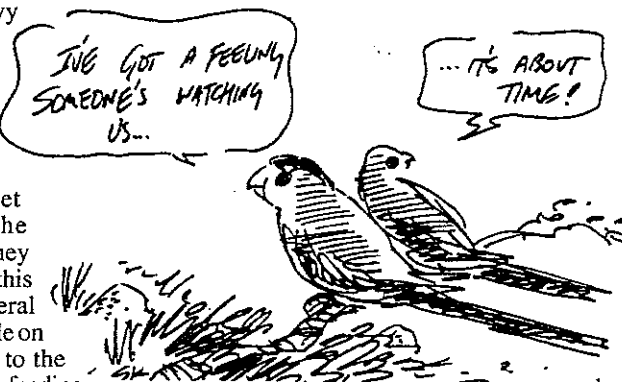
Breeding success, however, does not appear to be a problem, with the population probably at least doubling immediately after each breeding season. Nor does food appear to be limiting in the dry season. Initial studies of dry season diet, including that fed to nestlings, is that food of high quality is available from at least early March to the first heavy rains at the end of the year. The main foods used are fire grasses, *Shyzachyrium* spp., These are among the most abundant grasses in the region. This means that most mortality occurs in the wet season. Our studies of the Hooded Parrot show that they have to eat low quality food at this time of year, including several food types that are not available on the Cape. Absolutely crucial to the study will be observations of the feeding

behaviour of the Golden-shouldered Parrots at the start of the wet season. These will not be easy to obtain because the parrots are difficult to find when not breeding and it will be hard for us to follow them in wet conditions. The parrots on the Cape, like the Hooded Parrots, are probably relying on a few species. We suspect those species have disappeared in places where the parrots no longer occur. In the last wet season of the study we plan to look at the ecology of these food plants.

What we expect to find is that the food plants are affected by changes in fire regime and, possibly, cattle grazing. We think that there used to be more fires early in the dry season. These prevented widespread wildfires and left many patches unburnt for several years. When the first storms of the wet arrived, some of these unburnt areas would be burnt either deliberately to obtain green pick for grazing

or as a result of lightning. Many long-term residents believe these storm burns are essential for keeping down the tea-tree suckers and seedlings that are spreading across the breeding habitat. Longer periods between fires at any one place would have resulted in greater fuel loads and hotter fires capable of cleaning up suckers. These fire regimes may also be important for maintaining the abundance of wet season foods.

At this stage we are not sure what effect cattle have on the Golden-shouldered Parrot habitat but the parrots do seem to have continued to breed in places the cattle vacate in the wet season. At Artemis, for instance, the cattle head for the hills as soon as the first storms arrive, or move to the banks of the major rivers. In other areas the presence of fences, the steepness of the hills or the uniformly flat terrain prevents this. Cattle also reduce the amount of grass that is available for storm-burning. Many people have observed to us that the suckers are thickest in bullock paddocks, where the grazing density is greatest. What may be necessary for both the sake of the parrots and to maintain good grazing country is to reduce the density of cattle from an area once every few years in order to have an effective storm-burn. We are currently running experiments to test these theories and shall report on them in later issues.



Golden-shouldered Parrots and CYPLUS

Over the last few years the Cape York Peninsula Land Use Strategy has been compiling an inventory of all physical and biological characteristics of the Cape to help future planning. Recently we have applied to have the Golden-shouldered Parrot project included under CYPLUS. This will enable us to draw on the work of CYPLUS scientists in interpreting our own results. We also hope to contribute to the project. Because most CYPLUS information has necessarily been collected during short expeditions by visiting experts, there has been little opportunity to study processes that are occurring in the environment. Our own studies of processes should complement the databases being assembled by existing CYPLUS projects.

Golden-shouldered Parrots in captivity

Under new legislation the ban on keeping Golden-shouldered Parrots could have been lifted. Recently, however, the Queensland Council of Avicultural Societies agreed that the ban should stay until the end of the present study. We applaud this decision, and hope that, when this work is finished, it will be possible to lift the ban. By then DNA fingerprinting techniques should have been perfected, so all captive birds will be individually identifiable. Also active management will make it harder to take birds illegally from the wild. In the past we think over-zealous collecting has removed some populations so we are glad to see that most aviculturalists wish to make a positive contribution to the species' survival in the wild.

Collaborators

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Though only two of us are involved in most of the fieldwork for this project, there are many others who are contributing their specialised expertise. With the help of the collaborators described on these two pages we hope to build up a comprehensive picture of all the aspects of Golden-shouldered Parrot biology that will be important for its conservation

Remote Sensing

*Simone Chick and Jim Monaghan
Geography Department, James
Cook University, Townsville*

The pattern of fires and floods varies from year to year, and it is important to have a long term perspective to determine how this has influenced the Golden-shouldered Parrot's distribution. Simone, an honours student under Jim's supervision, is developing this perspective using remote sensing, including both aerial and satellite photography. Simone spent a fortnight at Artemis in March, wading about the swamps and beating off the March flies as we searched for nests and surveyed the vegetation. Her project should be finished in November so we hope to report the results in the next issue.

Vegetation of Cape York Peninsula

*John Clarkson and John Neldner
Department of Environment and
Heritage, Mareeba*

We are lucky to be doing this project at a time when the vegetation of Cape York is being comprehensively mapped. From our work we can say what habitats the parrots are using and what foods they need, but mapping the extent of these would be a major undertaking beyond our resources. John and John are not only producing maps (providing us with advance copies) but have their information on computer which can be fed into other studies, including Simone's work on fire and flooding patterns.

Extinction

*Hugh Possingham
Department of Mathematics
Adelaide University*

Hugh is a mathematician who has developed a computer program which tries to predict whether a species is likely to go extinct. Called ALEX, it uses information on breeding success, life-span and breaks in the species'

distribution, along with many other factors, to predict which stages of the life cycle are most likely to be affected by changes in the environment. If we can collect the right information, we should be able to determine if the Golden-shouldered Parrot is inevitably on the way out, or whether it could breed up again once the threats to its survival are removed.

Tropical Bird Communities

*John Woinarski
Conservation Commission of the
Northern Territory*

John's studies of the ecology of birds in the Top End of the Northern Territory and in the Kimberley are the model for our own study of the community of birds that live on Cape York Peninsula. He has shown that tropical woodlands usually have about 10 birds per hectare. Using his methods we have found the Cape has about half that number of birds, with seed-eaters such as the Golden-shouldered Parrot being one of the main groups which are less common. This may be a result of differences in soil fertility, meaning less food. But we do know that several bird species have disappeared from sections of the Cape within the last 70 years, suggesting that the dearth of birds could be from changes in the habitat.

Incidental Bird Surveys

Visiting birdwatchers

Early in 1993 we put out an appeal to birdwatchers intending to visit Cape York Peninsula to come and help us find new populations. We also wanted them to count the numbers of finches and other seed eaters coming to drink at waterholes in the dry season to contribute to our understanding of woodland bird communities. Quite a number of birdwatchers have responded and we have been arranging for them to visit properties to survey birds. Many birdwatchers stop at Artemis to see the parrots and we are grateful that they are also finding the time to contribute to the species' conservation.

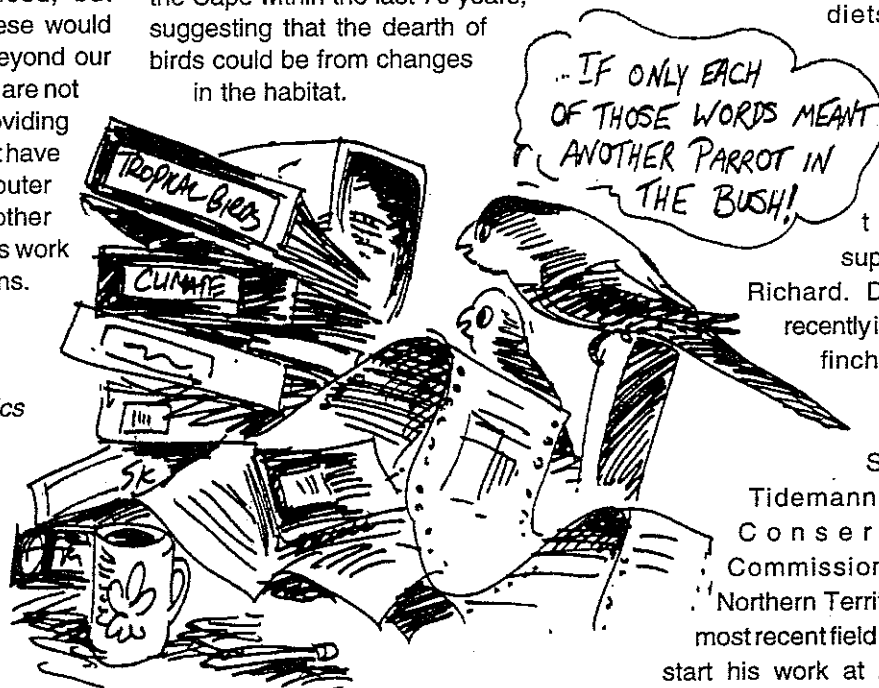
Finch Diets

*David Mitchell and Richard Pearson
Zoology Department of James Cook
University*

We are keen to discover whether the finches could compete with the Golden-shouldered Parrot, particularly during the early wet season when grass seed is scarce.

David will be working on finch diets at our

study site on Artemis for his Master's thesis, supervised by Richard. David was recently initiated into finch research when he assisted Sonia Tidemann of the Conservation Commission of the Northern Territory on her most recent field trip. He will start his work at Artemis in August by looking at dry season diet.



Collaborators

Climate

Maria Cassinas and Matt Bolton
Environmental Resource Information Network

Australian Nature Conservation Authority, Canberra

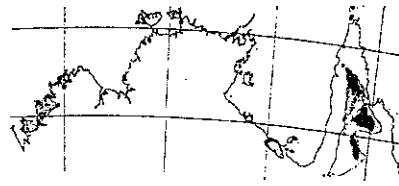
Golden-shouldered Parrots stop brooding their young when they are about 6 days old. So they can only breed where it is warm overnight through the breeding months of March to June. This is probably why they are only found on Cape York Peninsula, where the temperature almost never falls below 21°C. We think Hooded Parrots can nest earlier because the wet season starts about a month earlier in the Northern Territory. Even so colder nights mean they must brood their young. But we don't know how these and other aspects of climate limit the parrots' distributions. Maria and Matt have been using the vast databases held by ERIN to predict the probable distribution of the Golden-shouldered and Hooded Parrots based on the climate of the places where they are known to occur. The initial results suggest that the two species' climatic preferences are completely different.

Genetic studies

Les Christidis
Victorian Museum

Les was one of the first people in the world to extract genetic material from feathers and many of the historically important specimens of Golden-shouldered Parrots are held in the collections at the Victorian museum. His work will involve the genetics of the parrots at several levels. First he will be looking at the relationships between the three parrots that nest in antbeds, the Golden-shouldered, Hooded and the presumed extinct Paradise Parrot. He will also be looking at genetic differences between existing and extinct populations of Golden-shouldered Parrot, which will help us work out how much the parrots move between different areas. Finally, with the help of researchers at the Royal Children's Hospital in Melbourne and the Victorian Department of Agriculture,

Collaborators



Suitable (black) and marginal (shaded) distribution of the Golden-shouldered Parrot (left) and Hooded Parrots (right). These preliminary maps were prepared by Maria Cassinas of ERIN using BIOCLIM.

he will be attempting to develop techniques for taking DNA fingerprints of individual birds. This last project has had great support from the avicultural societies because the techniques should be applicable to all parrots and be a major tool in the control of smuggling.

Cat Diets

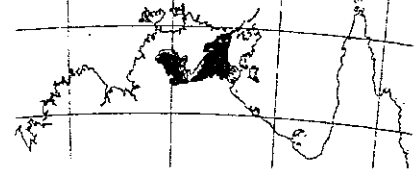
Daryn Storch
Department of Environment and Heritage, Cairns

One of the first things people ask us is whether cats are responsible for the Golden-shouldered Parrot's decline. To find a cat that has eaten a rare parrot would be an exceptional feat, but we can determine how much cats rely on birds for their food, and whether those birds behave in the same way as our parrots. Daryn is studying the diet of cats in central Cape York. So far we have ten guts awaiting analysis - most appear to be full of scales or fur rather than feathers. It is hoped to have many more now that we have a spotlight and a firearm. Anyone who would like to contribute cats to this study should contact Daryn on 070-523071 - any samples from the Cape are welcome.

Food eaten by cats on Cape York Peninsula (analysis by Daryn Storch)

| | %Volume | No. of cats |
|------------|---------|-------------|
| Vegetation | 1.2 | 6 |
| Insects | 3.3 | 5 |
| Amphibians | 5.9 | 1 |
| Reptiles | 15.6 | 4 |
| Birds | 21.8 | 6 |
| Mammals | 51.9 | 6 |
| Other | 0.3 | 2 |

Collaborators



Studies of captive birds

Kevin Langham
Tipperary Sanctuary for Endangered Wildlife, Northern Territory

While we were in the Northern Territory we visited Tipperary Sanctuary and saw the astonishing work being done there to conserve endangered wildlife. Kevin offered to run experiments using captive Golden-shouldered and Hooded Parrots that will supplement our studies of the wild birds. He has already provided material to Les Christidis at the Victorian Museum that will be used in genetic studies and is planning a series of experiments on feeding behaviour, rates of food intake and nutrition that will provide data that is unobtainable in the wild.

Use of fire on Cape York Peninsula

Lesley Head
Geography Department, Wollongong University

Lesley has been studying the way people use fire in the Kimberley region of Western Australia. We are going to be working with Lesley, possibly with the help of one of Lesley's students, to do the same thing in areas where the Golden-shouldered Parrot occurs, or at least used to. We are sure changes in fire regime have had an effect on both the Golden-shouldered Parrot and other species on the peninsula. We hope to find out what those changes have been by talking to people who do the burning, finding out when they burn and why, as well as by doing experiments on the vegetation to see how it responds to fire at different times of year.

