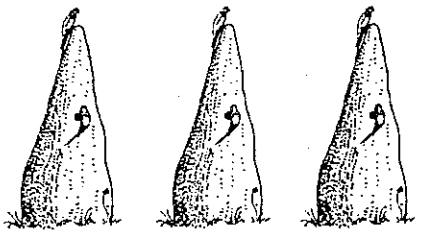

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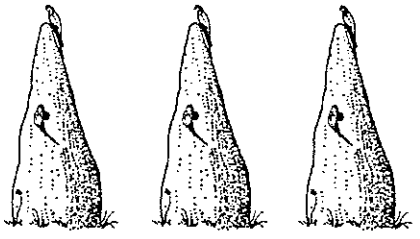


Issue 3 April 1994

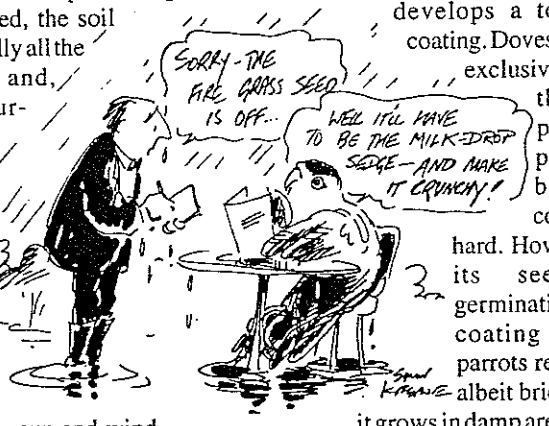
An occasional newsletter about the Golden-shouldered Parrot produced by Stephen Garnett and Gabriel Crowley.

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, the World Wide Fund for Nature (Australia) and the Australian Nature Conservation Agency. Last issue we discussed the idea that Golden-shouldered Parrots would find it difficult to survive after the seeds they eat in the dry season germinated with the first rains. We are therefore glad to report that a considerable number of parrots have come through the 1993/94 wet season - just how many will be apparent after the nesting season. They survived by eating fallen seed for much longer than we had expected, helped by moving from the plains to the hills and by storm-burns, fires lit soon after the start of the wet season (see "**Seeds and Rain**" & "**Fire and the Parrots**"). In Antbed 2 we also discussed the problem of the disappearing grasslands, and whether these might be recovered by storm-burning. Storm-burning itself may not kill the suckers directly, but the setback at that time of the year might be important (see "**Fire and teatrees**"). In this issue we also report on some new studies and future prospects.

SEEDS AND RAIN

We had predicted that once the rain started the dry-season staple of the Golden-shouldered Parrots - Fire Grass *Schyzachyrium* spp. - would start disappearing, and that new grass seeds would not be available for some time. And sure enough, the day after the first rains, the parrots shifted to a smaller grass seed and fed for several hours longer than usual. A few days later we found Fire Grass seedlings.

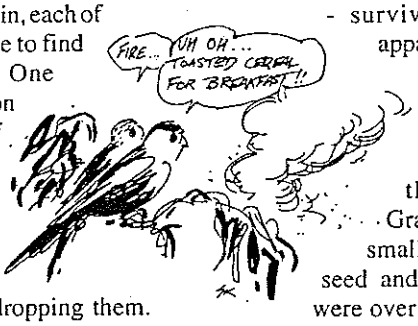
But it turned out to be a false alarm for the parrots, and a false hope for the grass. The season faltered, the soil dried again, virtually all the seedlings died and, much to our surprise, buried, ungerminated fire grass seed resurfaced, allowing the parrots to return to it. We had marked some seeds and found that, while raindrops buried them, sun and wind exposed them. And many did not get buried at all. In fact we think that, rather than there being a lack of fire grass seed, it simply became too soggy for the parrots to husk - like most people, the parrots like their cereal crisp. Even after the rain returned, the decline in the availability of fire grass seed was only gradual and the parrots returned to it whenever they could. As well as being adept at finding patches of ungerminated seeds, they took seed that had begun to germinate and seed that had partly rotted. Even in March the odd ungerminated seed remained, though they no longer occurred at densities to attract the parrots.



PARROTS IN THE WET

When the rain took the crunch out of the Fire Grass seed, the parrots switched first to the little known Glimmer Grass *Planichloa nervilemma* which has little pockets in the seed head that only need to be squeezed gently to extract the seed. When that too began to germinate they switched again to the seed of Pendent Milkdrop-Sedge *Scleria rugosa*. Unripe Pendent Milkdrop-Sedge seed is a favourite food of the parrots in the late wet but it then develops a tough outer coating. Doves eat it almost exclusively through the dry but parrots don't, possibly because its coating is too hard. However, when its seed began germinating and the coating split, the parrots returned to it, albeit briefly because it grows in damp areas and these soon became too waterlogged for the parrots to feed in.

After the rains set in, each of the groups we were able to find behaved differently. One group started chewing on the new growth of broad-leaved teatree, spending almost the entire day walking from one shoot to another, tweaking the emerging leaves and dropping them. They were hardly damaged and we can only think that each contained a fragment of sugar on the outside.



Another group, which lived in the hills, spent all its time running over rocks, plucking old seed from dimples in the rough granite where it could not possibly germinate. A third group lived where a small area had been storm-burnt. Here they continued to find old Fire Grass seed before they too turned to teatree growth buds.

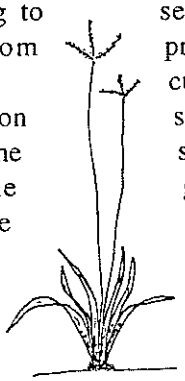
Then, over a period of about a week, each of these groups dwindled or dispersed. Fortunately we were able to follow two groups in areas that had been burnt in early January, long after the first rains. These behaved as if the wet hadn't even begun, feeding cheerfully on Fire Grass, albeit seed which had been toasted by the fire, was partially rotten, or just managed to stay dry. And to one of these groups, in rocky hills that run off the Great Dividing Range, came some of the banded birds from the flocks that had dispersed.

Soon after the parrots arrived the teatrees came into blossom and, as the old seed in the hills began to run low, the parrots at all sites turned to this, as well as chewing on the new growth of trees now recovering from the fire - survival rations but apparently sufficient to dissuade the birds from dispersing again. Finally the Cockatoo Grass and a range of small herbs came into seed and the lean times were over - birds from the range reappeared on the lowlands and everywhere the parrots were scraping at mounds in readiness for nesting.

GRAZING AND THE PARROTS

As cattle grazing is the main landuse in areas where the parrots survive, it is important to assess the effect cattle have on the birds and their habitat. There are three ways cattle could affect the parrots - by eating their food, by knocking over the mounds in which they nest or by eating or trampling grass that would once have acted as fuel in fires. We are looking at all three and we are beginning to get some results from experiments.

During the dry season there is no problem - one of the favourite places for the parrots to feed is where cattle have trampled the grass. In the wet it could be a different story. From the beginning of this year we have been recording what the cattle are eating and it seems that one of their favourite grasses early in the wet is Cockatoo Grass *Alloteropsis semialata*. Since we knew that seed of this grass is a favourite food of Hooded Parrots, and has turned out to be the first of the new season seeds for the Golden-shouldered Parrots as well, we set up an experiment to test the effect of grazing on seed production. We found that cutting the foliage in a way that imitated grazing once in the early wet season did not reduce seed production, but that a second cut a week later almost stopped seeding altogether. This suggests that sustained heavy grazing of Cockatoo Grass pastures in the early wet could affect the parrots deleteriously. Fortunately, on the stations we have been studying, surveys have shown that seed production appears to be at a healthy level so current stocking rates pose no problem for the parrots.



PENINSULA PENGUINS?

To study fire we had to label many hundreds of individual trees. We couldn't use aluminium labels because cows eat them and both they and plastic labels shrivel or melt when burnt. Our problem was solved by Belinda Dittman of the Australian Bird and Bat Banding Scheme who extracted from her warehouse a thousand retired penguin flipper bands whose design had been superseded. Despite the contrast of their intended climate, they have proved ideal for marking our trees and we are most grateful to Belinda for her help.

The first Golden-shouldered Parrot specimens

In the first Antbed we told how the doctor on A.C.Gregory's expedition, J.R.Elsey, collected the first Golden-shouldered parrot's known to science from an area near Normanton - and that the species has never been seen there since. We thought we had visited the exact site they were collected, on Gum Creek Station east of Normanton, a waterhole surrounded by habitat that no longer looked in any way suitable. Then Dr Norman Wettenhall of Melbourne provided a copy of the account of the expedition. On reading this we realised that John Gould had muddled the dates, and therefore the location of collection. In fact the birds appear to have been collected from the banks of the Carron River on Hereford Station, a property now owned by Daryl and Janice Hall. The Halls kindly let us visit the true type locality, a waterhole surrounded by just the sort of habitat we think the parrots would frequent in September.

However, though the dry season habitat was right, flats in the vicinity either looked too overgrown with teatree to attract breeding parrots or lacked termite mounds. We suspect the parrots disappeared from the area many years ago but we hope to return to survey the bird community, to see how that site compares with other places from which the parrots have disappeared. The British Museum have also sent us feathers from Elsey's specimens so we can see how closely they are related to living individuals.

Fire and the parrots

"With all the burning, surely the parrots must have a hard time of it!" seems to be the gut reaction of many visitors to the Cape. We weren't so sure. After all the parrots were still on the properties which were being burnt. Now we know that these fires have had an important role in keeping the parrots alive. Fires do destroy some seed, but what is left is easier to find - and the Golden-shouldered Parrots vote with their feet by feeding almost exclusively in burnt areas from May to February. When not feeding in burnt areas, they seek out naturally clear areas, such as stony outcrops, roadsides and areas trampled by cattle. Their problem seems to be not so much a shortage of food but accessibility. We think that the parrots have declined because there has been too little fire not too much.

Fire and teatrees

Old aerial photographs of Cape York Peninsula show many areas of open grassland. But such areas are harder to find today. Once grassy places, with names like Silver Plains and Birthday Plains, are now covered in dense woodland and some flats near Coen formerly occupied by parrots are now completely closed over, lacking even the termite mounds that the birds once used for nesting. The worst culprits are teatrees, especially the broad-leaved teatree *Melaleuca viridiflora*, but many other shrubby species are also involved. The forests and woodlands also seem to have become overgrown with shrubby undergrowth.

A return to previous burning patterns seems the answer. The trouble is, we don't know exactly what sort of fires will best clean-up the country. We had seen stands of teatrees fully recovered within six months of fires burnt in the both early and late dry seasons.

Local land-holders believe storm-burns are the solution so we have set out to discover what effect this might have on the teatrees and if so why. To do this we have marked, cut or burnt hundreds of teatrees in the Musgrave area, from which we will get results in the next few months. We also had the idea that soil temperatures could be a critical factor in storm burns. In November, Ross Bradstock of the NSW National Parks and Wildlife Service sent his assistant, Mark Tozer, to train us in the use of equipment that measures soil temperatures at various depths in the soil. This led to a hectic panic to monitor three late dry-season fires. The first storms started as we were digging up the probes of the third fire at a place appropriately called Lightning Creek. Two days later we began looking at storm-burns on Artemis which had had one inch (25 mm) of rain, and Mary Valley right next door that had had 8 inches (200 mm).

Sadly for our theory, any differences in effect between dry season fires and storm-burns don't appear to have been caused by differences in soil temperature, as lethal temperatures (thought to be around 60°C) were rarely reached in the root zone in any of the six fires we measured. Even plants we had burnt with a blow torch until their roots reached 65°C managed to recover. Luckily we had begun cutting back groups of suckers in the dry season, cutting new groups until the wet season was well under way. Though almost every one of the plants we cut recovered, the ones cut or burnt once the soil was wet are having a hard time of it. Many of these are small and sickly, and insects keep trimming them back to ground level. Whether this makes any difference to their eventual survival is yet to be seen, but so far it does support to the local lore about the importance of storm-burning for keeping the country open. There may always be plenty of suckers ready to take off given a few fire-free years, but regular storm-burns may keep these at a lower level than fires at other times of the year.

Fire in the future

We are gathering enough material to be able to say that the more burning landholders do the better. More frequent burning, from the start of the dry season on, means fires that do not travel far and there will always be areas that escape. Without extensive early burning, large swathes of country will inevitably be consumed by wildfires that come at the end of each dry season. If there are no areas left to burn when the storms begin, the birds will find it harder to find food and the suckers will get away.

Parrots in the landscape

During 1993 Simone Chick from the Geography Department of James Cook University prepared an honours thesis that attempted to determine which parts of the landscape are most favoured by the parrots for nesting. Using aerial photographs and LANDSAT imagery she produced a splendid GIS model of our whole study area, including Violet Vale Station from which the parrots disappeared in the 1970s. She was able to show, from the 1992 and 1993 nesting data, that the parrots chose areas of intermediate drainage density (length of creeks/hectare). These areas certainly stand out on the maps she has prepared. Since all her maps are on computer we look forward to testing her model with data from 1994 and 1995.

Do finches compete with parrots?

Usually where there are parrots feeding there are also Masked and Black-throated Finches and we wondered whether the three species might compete. In August this was studied in part by David Mitchell, who is doing his masters degree at James Cook University, with the assistance of Andrew Ley who was visiting at the time as a volunteer. They found that all three were indeed eating Fire Grass seed. Our own analysis of fallen seed at the time shows that there was ample for everybody. Our later observations suggest that the the finches continue to take the same food until well into the wet, probably surviving on lower seed densities than the parrots, and also take termites and other insects when seed is really scarce.

Sue Shephard joins research team

Many of those who read this newsletter will know Sue Shephard who, with her husband Tom, owns Artemis Station where we live and work. We are delighted that she has now been able to find the time to help with the research. She is primarily responsible for determining what the cattle eat and monitoring the parrots' nesting success. The last few weeks she seems to have spent permanently on a motorbike, trundling through remote swamps in search of termite mounds with holes in them. Sue is certainly a great asset to the team, as she knows the country well, and her interest in the parrots goes back some 20 years.

Parrots at Silver Plains

Information on the history of the parrot's decline has often arrived by tortuous paths. Take this example: Elinor Scambler and Pat Daly had been helping with the project as volunteers when they visited Maurice and Carol Shephard at Mary Valley Station. The Shephards mentioned that Lea Wassell, an entomologist who lived on Silver Plains Station in the 1950s, may have seen the parrots. Through Irene Taylor of Coen we were able to write to Mr Wassell's widow, Eileen, who told us that her late husband had helped Sandy Hunt, author of the first field guide to Australian parrots, search for them in 1959. A letter to Mr Hunt elicited this reply:

"Yes I did find the Golden-shouldered Parrot on Silver Plains when staying with the Wassell family in the late 1950s... I was privileged to find a family party of parrots, to my great excitement,.. in the Bullock Paddock. In the previous ten days I had covered tens of thousands of acres by vehicle and on foot."

This is the first record from Silver Plains since Mrs Taylor saw them on her way to boarding school in 1929, and a great contrast to the early 1920s when William McLennan found nests on nearly every flat. The species was obviously once common there, to the extent that the Lamalama people who lived there had a name for it - *Thaku.*

Funding and the Golden-shouldered Parrot Recovery Plan

We are glad to say that this is one newsletter in which the plea for funding is not implicit in every item. As well as our initial and continuing funding from the Worldwide Fund for Nature (Australia) and the Queensland Department of Environment and Heritage, we have received generous grants from the Endangered Species Program and Save The Bush sections of the Australian Nature Conservation Agency.

This funding will allow the implementation of a recovery plan that should see the parrot numbers recover to a more stable level. One of the first stages is the formation of a recovery team to oversee future developments. This team will comprise representatives of all major funding agencies as well as owners of properties with parrots. We hope involvement of landholders will ensure that plans to protect parrot habitat are both practical and do not disadvantage this section of the community. The first recovery plan meeting will in held in April.