

## SHORT COMMUNICATIONS

### A SURVEY OF PARROTS, SEPTEMBER 1965

In September 1965 there was a severe drought over much of Australia. From 3 to 23 September 1965, I travelled from Armidale in New South Wales through western Queensland to the Gulf of Carpentaria, Camooweal, Tennant Creek and Alice Springs in Northern Territory; then to Kingoonya, Port Augusta and Barmera in South Australia; and finally via Swan Hill, Hay, Forbes, Dubbo and Tamworth back to Armidale (Fig. 1). While travelling, I kept count of all parrots seen and thus estimated their distribution and abundance in this drought.

#### METHODS

The counts were made while the car was travelling. The speed was always between sixty-five and 100 kilometres per hour. A distance of approximately thirty-five metres on each side of the road was surveyed by looking ahead of the vehicle.

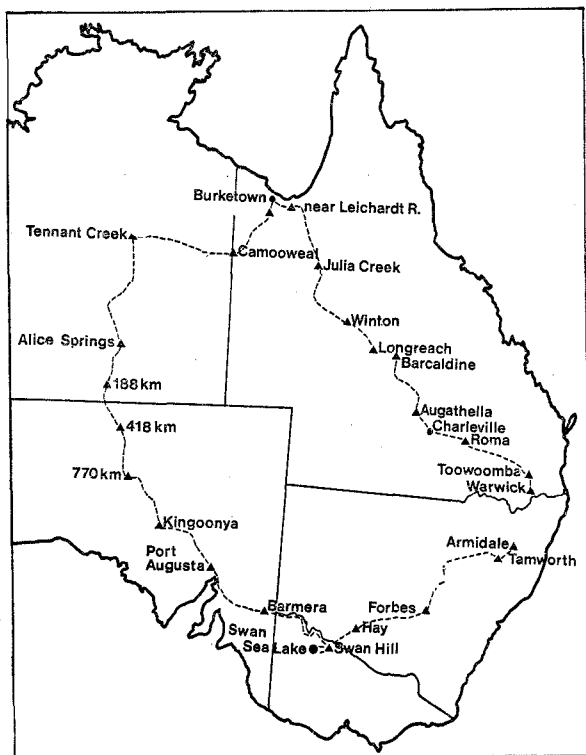


Figure 1. The area surveyed, showing ▲ - - - ▲ route of transect and site of night stop; ● township.

The data have been summarized according to daily stages of the survey, so that towns or camping places are always starting and ending points of the day's trip. The results are abbreviated and placed in order according to the following conventions:

starting point—ending point: number signifying the date of the day in September 1965: starting and ending time: distance covered in kilometres: species and number per kilometre abbreviated as follows in order of appearance:

**AdR**, Adelaide Rosella *Platycercus e. adalaidae*  
**B**, Budgerygah *Melopsittacus undulatus*  
**Bk**, Bourke's Parrot *Neophema bourkii*  
**BIB**, Blue Bonnet *Northiella haematogaster*  
**C**, Little Corella *Cacatua sanguinea*  
**CR**, Crimson Rosella *Platycercus e. elegans*  
**CW**, Red-winged Parrot *Aprosmictus erythropterus*  
**ER**, Eastern Rosella *Platycercus eximus*  
**G**, Galah *Cacatua roseicapilla*  
**Mg**, Many-coloured Parrot *Psephotus varius*  
**PhR**, Pale-headed Rosella *Platycercus adscitus*  
**PtL**, Port Lincoln Parrot *Barnardius zonarius*  
**Q**, Cockatiel *Nymphicus hollandicus*

TABLE I

A comparison of the rainfall in six months (March to August 1965) and the twelve months (September 1964 to August 1965) before the survey against the thirty-year average (1931–60) rainfall for similar periods, at selected stations. The stations are arranged in order, from the most northern to the most southern.

Town	6mth*/6mth 30-yr av. rainfall**	12mth*/30-yr av. ann rainfall**
Burketown	2.13	1.18
Tennant Ck.***	3.18	1.23
Winton	0.70	0.54
Longreach	0.61	0.82
Alice Springs	0.26	0.33
Charleville	0.37	0.44
Port Augusta	1.34	0.80
Hay	0.97	0.85
Mildura	1.21	1.12
Clare, SA	0.94	1.02

\* Supplied by the Australian Bureau of Meteorology.

\*\* From the Commonwealth Bureau of Meteorology (1966).

\*\*\* At Tennant Ck. 289 mm fell in March; following this there was a five-month drought.

**RbP**, Red-rumped Parrot *Psephotus haematonotus*  
**RgP**, Regent Parrot *Polytelis anthopeplus*  
**RtBC**, Red-tailed Black Cockatoo *Calyptorhynchus magnificus*

**VLk**, Varied Lorikeet *Psitteuteles versicolor*  
**WC**, Sulphur-crested Cockatoo *Cacatua galerita*  
**YR**, Yellow Rosella *Platycercus e. flaveolus*

brief habitat description for stage: comments on degree of drought judged by average rainfall and rainfall during past twelve months (Table I). Each species is listed as the number seen per kilometre and where this value falls below 0.01 it is recorded as 0.0, i.e. present but at a level too low to record.

## RESULTS

**Warwick-Toowoomba**: 3: 09:30–11:00: 90: **G**, 0.02: **Q**, 1.12: largely treeless blacksoil plains: reduced rainfall.  
**Toowoomba-Roma**: 3: 12:00–18:00: 415: **G**, 0.01: **Q**, 0.03: **WC**, 0.0: **PhR**, 0.01: about eighty kilometres of treeless blacksoil plains, remainder open woodland: reduced rainfall.  
**Roma-Augathella**: 4: 10:30–18:00: 325: **G**, 0.04: **Q**, 0.01: open woodland with patches of grassland. Charleville district was in its second year of severe drought but had average rains in July and August.  
**Augathella-Barcaldine**: 5: 09:00–19:00: 283: **G**, 0.31: **Q**, 0.16: **CW**, 0.01: **PhR**, 0.01: dense mulga scrub for about 110 kilometres then grassland with trees on creeks: second year of severe drought, with rains approaching average in the previous three months.  
**Longreach-Winton**: 6: 12:20–18:10: 177: **G**, 0.68: **Q**, 2.24: **B**, 11.97: Treeless plain interspersed with scattered trees and shrubs: Winton was in the first year of severe drought, May, June, July and August having no rain at all.  
**Winton-37 km NW Julia Creek**: 7: 09:00–18:00: 332: **Q**, 0.56: **B**, 0.13: largely treeless plain: drought conditions.  
**37 km NW Julia Creek-58 km SW Leichhardt River**: 8: 09:30–18:15: 306: **Q**, 0.12: open woodland: rainfall was markedly better than average in the northern region of the transect.  
**58 km SW Leichhardt River-143 km S Burketown**: 9: 09:30–18:00: 280: **G**, 0.02: **Q**, 0.06: **B**, 0.45: **VLk**, 0.11: woodland, scrub, open woodland and grassland: rainfall above average throughout.  
**143 km S Burketown-Camooweal**: 10: 09:30–18:00: 261: **G**, 0.28: **Q**, 0.37: **B**, 5.00: **RtBC**, 0.18: **C**, 0.06: **VLk**, 0.04: woodland, open woodland, patches of grassland: starting normal and becoming drought stricken.  
**Camooweal-Tennant Creek**: 11: 09:30–18:00: 504: **G**, 2.28: **Q**, 0.03: **B**, 1.02: **C**, 0.14: for about 113 kilometres the habitat is grassland and it is here that the **G**, **Q**, **B** and **C** were seen. Most of the way passes through low scrubland finally opening into variable open mulga scrub. Thus the densities of the above birds were about five times the value shown in the region where they occurred: earlier months normal but with greatly reduced rainfall in later period.  
**Tennant Creek-Alice Springs**: 12: 09:30–18:00: 528: **G**, 1.61: **Q**, 0.01: **B**, 0.15: open mulga scrub: apart from most exceptional rains in March at Tennant Creek, which was greater than the average annual rainfall, the rest of the year was far below average.  
**Alice Springs-Camp 188 km S**: 18: 12:15–18:15: 188: **G**, 0.01: degraded mulga scrub severe drought conditions.

**Camp 188 km S-Camp 418 km S**: 19: 09:10–18:25: 230: **G**, 0.01: **PtL**, 0.0: **Mlg**, 0.0: degraded mulga scrub and grassland: severe drought conditions.  
**Camp 418 km S-Camp 770 km S (27 km W Coober Pedy)**: 20: 09:30–18:00: 351: **G**, 0.43: **PtL**, 0.01: **Bk**, 0.01: degraded mulga and desert grassland: severe drought, improving southward.  
**Camp 770 km S-Kingooonya**: 21: 10:14–18:00: 272: **Mlg**, 0.01: degraded mulga, mallee and stony downs: drought in northern sector rapidly changing to better than average conditions.  
**Kingooonya-Port Augusta**: 22: 09:10–18:00: 296: **BtB**, 0.01: mallee, stony downs, salt lakes: normal season.  
**Port Augusta-Barmera**: 23: 10:25–18:15: 340: **G**, 0.21: **C**, 0.68: **WC**, 0.0: **AdR**, 0.01: **RbP**, 0.02: fruit growing regions and mallee scrub: normal season.  
**Barmera-Swan Hill**: 24: 10:00–18:00: 385: **G**, 0.03: **Q**, 0.01: **RbP**, 0.01: **BtB**, 0.01: **RgP**, 0.01: mallee and fruit growing: normal season.  
**Swan Hill-Sea Lake-Swan Hill**: 25: 09:30–13:40: 122: **G**, 0.08: **RbP**, 0.04: **BtB**, 0.04: mallee and cultivated grassland and crops: normal or better.  
**Swan Hill-Hay**: 25: 14:20–17:20: 142: **G**, 0.26: **Q**, 0.25: **YR**, 0.01: **BtB**, 0.01: riverine forest and grassland: normal season.  
**Hay-Forbes**: 26: 10:25–18:25: 375: **G**, 0.47: **Q**, 0.39: **RbP**, 0.11: **BtB**, 0.02: **ER**, 0.01: riverine forest, grassland, saltbush shrubland: normal.  
**Forbes-Tamworth**: 27: 09:10–16:30: 515: **G**, 0.41: **Q**, 0.06: **RbP**, 0.25: **ER**, 0.02: **BtB**, 0.0: woodland, savanna woodland, open farmland and grassland: drought.  
**Tamworth-Armidale**: 27: 16:30–18:00: 113: **G**, 0.08: **RbP**, 0.03: **ER**, 0.46: **CR**, 0.03: savanna woodland: severe drought.

## DISCUSSION

The same observer collected the data throughout the survey; thus the data are comparable. Dense woodland and tall shrubland reduce visibility; this potential error does not introduce grave concern because Galahs, Cockatiels and Budgerygahs were not seen in these habitats. Time of day is another source of error; more parrots tend to be seen early and late in the day than about midday. However, twenty of the twenty-three stages of the survey included the evening period and thus an appreciable part of the transect was surveyed during the active period of the birds. In general, I believe that the results indicate relative differences in density between stages of the transect.

It would be possible to analyse the results more closely; for the large samples taken over hundreds of kilometres (100 km is equivalent to 700 ha) can be reduced to smaller samples. However, with certain exceptions the results seem to hold over long distances and are not the result of a few isolated (accidental) occurrences at sporadic points along the transect.

A comparison of the rainfall during the previous six and twelve months with the average rainfall over these periods is presented in Table I. The northern and southern parts of the continent before the survey had received average to above average rainfall, while

the interior had experienced a severe drought. This supports the notes on the seasonal conditions for each leg of the survey.

A first-order guess at the distribution and abundance of parrots in eastern Australia based solely on rainfall and the continental drought would place them more or less equally in the north and south of the continent. The results show that this guess is far from the mark. The three common species (Galah, Cockatiel and Budgerygah) are concentrated in the north, while generally the other species are in the south. The distribution of the three common species, summarized in Figure 2, shows:

- (1) high concentration of Galahs, Cockatiels and Budgerygahs between Longreach and Winton and in the Camooweal district;
- (2) widespread distribution of Galahs, with that of Cockatiels only less wide because they were absent between Alice Springs and Barmera;
- (3) distribution of Budgerygahs confined to the Longreach-Winton and Camooweal district.

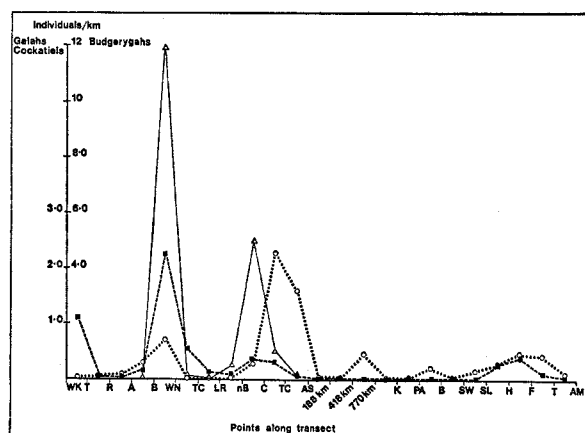


Figure 2. Rate of occurrence (individuals/km) of Galahs, Cockatiels, and Budgerygahs. Points on the transect follow legend in Figure 1. The zero occurrence of Budgerygahs is omitted except between Augathella and Alice Springs.

○ Galah; ■ Cockatiel; △ Budgerygah.

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A draft of this paper was written by J. Le Gay Brereton before his death. It has been re-written and the 'Discussion' section modified by Edmund Wyndham, School of Australian Environmental Studies, Griffith University, Nathan, Q 4111.

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These three species have a well-established reputation for long-range movement. Only that of the Galah rises above anecdotal level. Pidgeon (1970) has shown that, though adults move no more than eight kilometres, the average movement of birds ringed in the nest or as juveniles was 110 kilometres. In addition, he produced evidence of recent extension of range in eastern Australia. The writings of ornithologists (well summarized by Cayley and Lendon, 1973) over a long period produces many scattered reports, which support these limited findings for the Galah, and similarly the impression is widely held that the Cockatiel moves over long distances. For the Budgerygah there is even more certainty that it moves over long distances, though from where it comes and into which regions it goes is doubtful. In general, most observers in western New South Wales suggest that Budgerygahs arrive in late spring or summer and depart in winter. In Victoria and South Australia they are usually absent in winter and this leaves the impression that Budgerygahs move north into Queensland in summer.

All three species are at times numerous in the east, south and centre; thus their numbers must build up after droughts by immigration or breeding or both. The Galah and Cockatiel could build up numbers by breeding by the numerous small populations left scattered through the region and this could be supplemented by immigrants from the large residual northern populations. The Budgerygah, however, is confined to a few refuges or 'outbreak centres' from which they must move out and recolonize unoccupied areas when seasons improve.

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