

A FURTHER IRRUPTION OF NATIVE-HENS IN 1975

W. E. MATHESON

Accepted May, 1978

In a report on the 1972-73 irruption of Native Hens *Gallinula ventralis*, the author predicted that following the widespread heavy rains and major flooding of all the northern rivers which occurred in 1973-74, another major irruption could be expected with the onset of drier conditions (Matheson 1974). The 1972-73 irruption ended abruptly following heavy rains which fell in the North-East (see map in *S.A. Orn.* 25: 220) in February 1973, creating favourable conditions for Native-Hens in their main breeding range and refuge area, the rivers and lagoons.

In late May 1975 there were indications that another irruption of Native Hens had begun. By then very dry conditions had persisted in the North-East for a period of seven months, with some relief in February 1975 when widespread rains and flooding occurred — Table 1. During February to March 1975 Native-Hen numbers at the Bolivar Sewage Treatment Works were steady at about 30, the normal figure for the area. Numbers increased rapidly in May, and

by the end of the month there were 400-500 present. B. Glover (pers. comm.) keeps meticulous records of birds at Bolivar. His records showed that Native-Hen numbers reached 4,100 by the end of August 1975, declining rapidly thereafter — Figure 3.

During 1975 numerous reports (105 in all) were received from most districts in South Australia. The greater numbers of reports came from the Adelaide Plains (38) and the Mt. Lofty Ranges (34). These were followed by the Lower North (11) and the South-East (10). There were few reports from Yorke Peninsula, Eyre Peninsula, the Murray Mallee and the North-East.

Figure 1 indicates the rapid build up in numbers which occurred following the start of the irruption. The vanguard arrived at the Bolivar Sewage Treatment Works in May, and Bolivar proved to be the main focus of the irruption. The largest flocks recorded in most months in 1975 were seen there.

TABLE 1 — RAINFALL AND FLOODING, NORTH-EAST, 1974-75

Month	Rainfall mm	*Normal Rainfall mm	% Departure from mean	Flooding events, etc.	
1974	Jan.	109	17	+541	many towns flooded out, rat plague in Oodnadatta 75-100 mm Moomba and Innamincka
	Feb.	35	20	+75	
	Mar.	7	15	-53	'remarkable' rains; record April for many stations. widespread flooding; many stations had received twice annual rainfall by June 30.
	Apl.	119	10	+1090	
	May	44	15	+207	
	June	4	16	-75	flooding.
	July	20	13	+54	
	Aug.	11	13	-13	record rains some stations, flooding.
	Sept.	35	11	+218	
	Oct.	57	14	+307	Alberga, Oodnadatta and Perdika had record rainfall in 1974.
	Nov.	2	13	-85	
	Dec.	2	15	-87	
1975	Jan.	11	17	-35	
	Feb.	75	20	+295	
	Mar.	2	15	-86	beginning of irruption.
	Apl.	2	10	-80	
	May	2	15	-86	
	June	2	16	-69	flooding; end of irruption.
	July	11	13	-12	
	Aug.	29	13	+123	local flooding.
	Sept.	46	12	+283	
	Oct.	53	14	+279	widespread flooding.
	Nov.	3	13	-77	
	Dec.	40	16	+150	extensive flooding.

* Normal rainfall is derived from the average of six stations — Oodnadatta, Maree, Leigh Creek, Beltana, Blinman and Cordillo Downs. (Source: Bureau of Meteorology).

Other centres recording large flocks were Virginia, A.P. (1200), Big Swamp, E.P. (1000), Little Swamp, E.P. (1000), Eudunda, M.M. (1000), Jamestown, L.N. (700) and Caltowie, L.N. (500). All large groups were seen near permanent water — lagoons, dams, streams or channels.

CAUSE OF THE IRRUPTION

Wet conditions prevailed in the North-East during 1974. Reference to Table 1 shows that flooding occurred in January, February, April, May, June, September and October. Many recording stations had record April rainfall and many stations had received twice their annual rainfall by the end of June. Several stations, including Oodnadatta, Perdika and Alberga, recorded their highest ever annual rainfall in 1974. During this extended period of favourable conditions, Native-Hen numbers probably built up following the flush of green growth which would have followed the flooding.

From October 1974, very dry conditions set in until August 1975, with the exception of good rains in February. Despite this respite it seems that Native-Hens moved out of the area soon afterwards, arriving in the vicinity of Adelaide

in May 1975. This was essentially the same situation as in 1972 (Matheson, loc. cit.).

The extended dry period ended in August 1975 when flooding occurred. This was followed by good rains and extensive flooding in September, October, and December.

END OF THE IRRUPTION

It is obvious that the irruption ended dramatically during August 1975 — Figures 1 and 3. Few Native-Hens were seen in the settled areas after October, and the numbers reported were similar to the base level before the start of the irruption.

In August 1975 large numbers of Native-Hens were seen in the Far North-East (Cox and Pedler 1977). There were c. 10,000 at Lake Oolgoopiarie and c. 5,000 at Coongie Lakes. It is possible that these birds may have returned from the settled districts but it seems more likely that these were local concentrations. One would expect the returning birds to be widely dispersed.

Cox and Pedler suggested that large numbers must have moved out of the area shortly afterwards as their habitat was then in the process of drying out. There was, however, no evidence of an irruption into the southern districts and, in fact, the North-East experienced extremely wet conditions for the remainder of 1975 — Table 1.

In September rainfall throughout the Lake Eyre basin was 5 to 7 times normal. The widespread flooding which occurred would have resulted in rapid growth of the fresh green feed highly attractive to Native-Hens (Matheson loc. cit.).

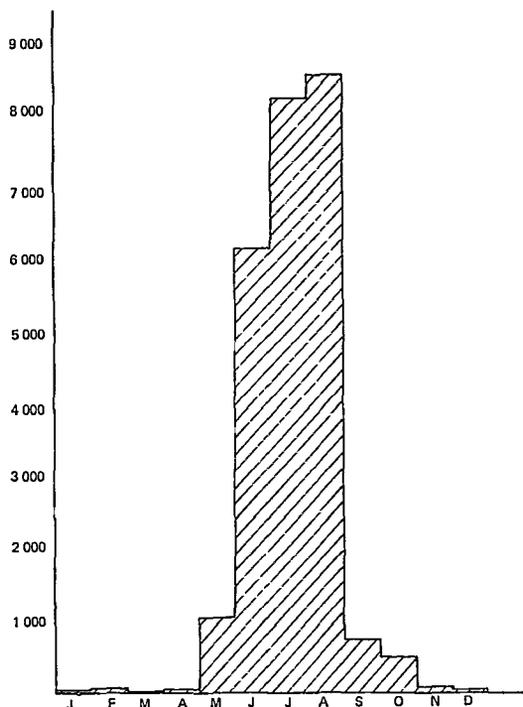
In contrast to 1973 when the irruption ended after the feed had dried off, Figure 2, the 1975 irruption ended as feed supplies in the settled areas were increasing rapidly. The 1975 season started late but conditions improved during the year. In fact, the October 1975 rainfall was an all time record for numerous stations in the settled areas, many with more than 90 years' continuous records. Despite this the irruption ended in August and the implications are discussed below.

DISCUSSION

The information presented in the report of the 1972-73 irruption and this report does much to explain the phenomenon of Native Hen irruptions, but some questions remain unresolved.

- (1) Why did Native-Hens return to the North-East in late 1975 when green feed supplies were plentiful in the settled areas?

Figure 1: Black-Tailed Native Hens, 1975



(2) Why did not a further irruption occur in 1976 following the return of drought conditions in the North-East?

The answer to the second question may simply be that in 1976 Native Hen numbers did not build up sufficiently to necessitate a massive exodus when the drought conditions set in. Unfortunately there is no means of testing this hypothesis.

In answer to the first question, one is tempted to put forward the hypothesis that some meteorological phenomenon was responsible. In Western Australia Dr. S. J. J. F. Davies has suggested that irruptions of emus are triggered off by cloud banks (Sexton 1976). The emus seem to move towards cloud banks in search of the food which usually follows the rain-bearing depressions in the south and the cyclones in the north. This results in a more or less regular movement of emus north to south and back again each year.

Native-Hens left the settled areas in August 1975, when there was a plentiful supply of green

Figure 2: Black-Tailed Native Hens, 1972-73

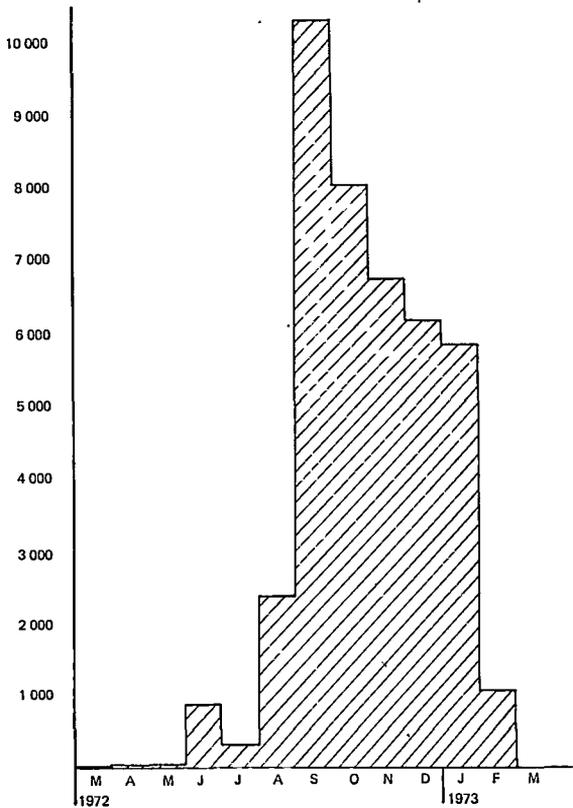
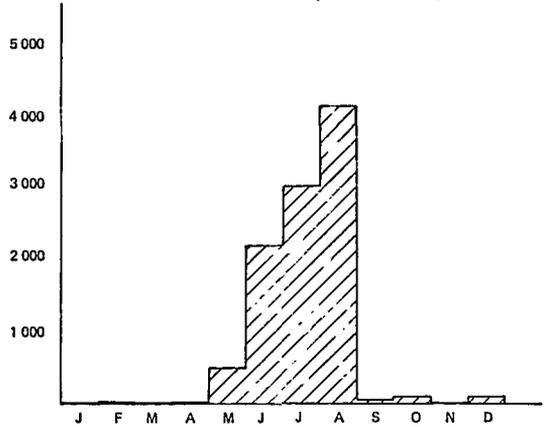


Figure 3: Black Tailed Native Hens Bolivar Sewerage Treatment Works, 1975



feed available, and when conditions were improving, almost simultaneously with the onset of widespread rains and flooding in the North-East. The relationship between the end of the irruption and the end of a prolonged dry period in the North-East is striking. A similar phenomenon was reported during the previous irruption (Matheson loc. cit.). It is tempting to speculate that they moved out in response to a visual signal—extensive cloud banks to the north.

IRRUPTION OF OTHER SPECIES IN THE NORTH-EAST

Shane Parker (pers. comm.) has drawn my attention to the similarity of conditions resulting in the irruptions of Letter-winged Kites *Elanus scriptus*, Long-haired Plague Rats *Rattus villosissimus*, a major food source for Letter-winged Kites, and Native-Hens.

All these species have a common distribution centre, the eastern Lake Eyre Basin and the Georgina-Diamantina drainage area. Long-haired Plague Rats survive droughts in highly localised populations around springs, bore drains and floodouts. Favourable conditions result in a rapid build up in rat numbers and irruptions, followed by a similar response in Letter-winged Kites (Parker 1971, Carstairs 1974).

Carstairs proposed that plaguing and mass movement ensure survival of Long-haired Plague Rats in a potentially lethal environment where extinction of the local populations is probably not uncommon. Following an irruption the rats are able to recolonise 'refuge' areas where drought has wiped them out. Irruptions

may also provide a survival mechanism for Native-Hens.

Letter-winged Kites and Plague Rats irrupted in 1951-53 (Parker, loc. cit.), coincident with the 1951-52 irruption of Native-Hens (Glover 1952). The 1966-69 irruption of Letter-winged Kites was also paralleled by two minor irruptions of Native-Hens. There was possibly a small influx in late 1967, but there were insufficient reports to confirm this (Glover 1969).

In February 1969, Native-Hens were seen in large numbers on dams at Mutooroo, L.N. Around Waikerie, M.M., in January to March, 1969, they were "never known to be so common in the bush," and in February 200 were seen at Lake Merreti, M.M. Breeding was reported

7 Blue Gum Court, Athelstone, S.A. 5076.

at Minlaton, Y.P., where Native-Hens were common from October 1968 to February 1969 (Glover 1971).

ACKNOWLEDGEMENTS

I am grateful to all those who kindly provided details of Native-Hen observations, especially Mr. Brian Glover and Mr. Rodney Attwood, Bird Record Secretary of the S.A.O.A.

REFERENCES

- Carstairs, J.L., 1974. The distribution of *Rattus villosissimus* during plague and non-plague years. *Aust. Wildl. Res.* 1:95-106.
- Cox, J. B. and Pedler, L. P., 1977. Birds recorded during three visits to the Far North-East of South Australia. *S. Aust. Orn.* 27:231-250.
- Glover, B., 1952. Bird Report. *S. Aust. Orn.* 20:82.
- Glover B., 1969. Bird Report. *S. Aust. Orn.* 25:77.
- Glover, B., 1971. Bird Report. *S. Aust. Orn.* 25:225.
- Matheson, W. E., 1975. The irruption of Native-Hens in South Australia in 1972-73. *S. Aust. Orn.* 26:151-156.
- Parker, S. A., 1971. Critical notes on the status of some Central Australian birds. *Emu* 71:99-102.
- Sexton, M., 1875. Emus on the move — 1976. *West. Aust. Jnl. Agric.* 17(3) 75-76.