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MIGRATORY MOVEMENTS OF EMUS AND CONTROL EFFORTS

A traditional pest of grain crops and a heartbreak to many battling farmers in the depression years, emus have cost the State thousands of pounds. Control attempts and migratory movements are discussed in this article.

By J. L. LONG, M.D.A., Research Technician and T. J. TOZER, Supervising Vermin Control Officer

ALTHOUGH little data has been recorded on movements or migrations of the Emu (Dromaius novea-hollandiae), it is well known throughout the farming community that some such movement occurs in September and October in most years at least.

This movement from the pastoral areas to the south-west is illustrated by the numbers of birds whose progress is diverted by the State Vermin Fences. Emus have also been known to congregate at other periods of the year (Winter months—June, July) on the Vermin Fences, while this seasonal movement has not occurred sometimes until later in the season (November, December and later.)

Direction of Movement

Along the fence systems (No. 2 and No. 3) the movement of birds is from the pastoral areas in a more or less south-westerly direction towards the agricultural areas. Within the fence system, especially in the northern and eastern wheatbelts, movement is generally smaller but the situation is further aggravated by flocks of birds born and bred in these areas. It has been noted in northern areas that movement inside the fence system followed upon a large scale movement down the No. 3 Vermin Fence. This movement appears to carry “wave-like” through the Mullewa-Pindar districts and further south to Mingenew, Morawa, Tardun, Canna and the outskirts of the Perenjori district. Outside the No. 2 Vermin Fence the Kalannie district is affected within the same period.

In the eastern wheatbelt, although large areas are protected by the No. 1 Fence, the birds so excluded are directed straight into the Warralakin, Boodarockin districts east to Bullfinch and into the Westonia district. For some years these districts have been some of the worst affected and around them the new Emu Barrier Fence has been built. Inside the No. 1 Fence in the northern section of the eastern wheatbelt, Kalannie, Wialki, Beacon and Bonnie Rock areas, have been badly affected by emus in the past. The building of the Lake Moore Emu Barrier has done much to alleviate the situation here, but there are still large tracts of virgin country, suitable for emu breeding, between these centres and the new fence, and there is still a problem in outlying parts of these districts.

There are also some congregations of emu south of the Great Eastern Highway, in the areas east of Narembeen, Kondinin and Kulin, in some years.
Occurrence and Reason for Movements

Since 1922, when the emu was first declared vermin, it has been reported by pastoralists and farmers that unusual movements of birds occurred in the years 1936, 1946-47, 1949, 1952, 1957 and 1959. Numbers of emu beaks passed for bonus payment, also indicate large numbers of birds in the years 1935-36, 1949-50, 1953, 1957-58 and 1960. Earlier invasions are recorded in 1919, 1929, and 1932 (Serventy and Whittell, 1962.)

There appears to be no easy explanation for these irregular migrations or movements of the emu. In pastoral areas it is said that “the scale of movement is dependent upon the conditions at the time and on the seasons immediately preceding,” which probably control the breeding of the birds. Reports received by the Agriculture Protection Board indicate that a succession of dry years in the pastoral areas will mean a full scale invasion of the cereal growing areas. However, this does not always eventuate. Sometimes these movements are reported to be arrested by heavy falls of rain in the vicinity of the moving population.

It is known that in 1952 there was a drought in northern areas and that this year was noteworthy for the eruption into the southern part of the State of many northern, central and eastern birds (Brolga, Ibis, Pied Goose, Kites). The situation appeared to be the result of above normal breeding in good seasons followed by drought. This compelled nomadic species to seek survival by temporary migration (Serventy and Whittell, 1962). A similar set of circumstances could account for a migration of emus in 1952, while possibly similar climatic or ecological factors were responsible for movements in other years.

The Effects of the Fence Systems on Movements

It is presumed that there was some irregular north-east to south-west movement of emus, before the construction of the fences. What effect the fence system has played in diverting these movements can only be gauged by the numbers of birds which are, and have been, found moving along them. At various times since 1959, counts have been taken particularly along the Lake Moore Emu Barrier Fence. From September, 1959 to March, 1962 counts (see Table) on this fence varied from 0.06 emus per mile to 2.19 emus per mile. The No. 3 Vermin Fence has had the highest concentration recorded, of 5.76 emus per mile in August 1959, when it was reported in the press that 1,200 birds were shot by hunting parties in a short space of time. During this same period hunting parties also reported that up to 200 birds per day were shot. On this same fence in 1935-36, a severe emu invasion occurred, and in a six month period, 56,204 beaks were presented for bonus payment.

The diverting effect of the No. 3 Fence encouraged the erection of the “Emu-proof” barrier now between the No’s. 1 and 2 Fences. The Lake Moore Barrier Fence, erected 1957-1959 was built to prevent the southward movement of birds into the north-eastern wheatbelt (Kalaninnie, Beacon, Wialki areas) and allows for future expansion of agriculture in these areas. An instance which helps show the effect of fencing as an effective emu barrier is to be found north of this fence. At least one pastoralist has commented that “emus are now a greater pest than previously, due to the fence preventing them from moving further south.”

Following the success of the Lake Moore Barrier, a further fence to protect the Westonia-Yilgarn Shires has been constructed. Erection of this fence commenced in 1963 and was completed by the end of 1964. It is anticipated that this fence will protect these areas from birds moving down the No. 1 Fence, but it should be remembered, that it is in the form of a “wing,” the lower reaches of which will be left open.

The vermin fences at present maintained form a barrier between the outer edges of the agricultural areas and the pastoral areas. This has had the effect of stopping most of the migratory birds from reaching the agricultural areas, but has left a fairly large number which cause considerable damage inside the fence system.
Control of Movements

Efforts to control movements of emus along the fence systems have generally ended in failure with the exception of controlled shooting. This has proved the most effective method.

Unlike emus inside the fence system which can be effectively dealt with over a period with poisoned grain (Gooding and Long, 1959-61), the migratory birds have been found to have no interest in baits of this kind.

Along the Lake Moore Barrier, experimental gate opening to allow congregations collecting at times in winter months on the southern side, to move northwards, proved of no use. The birds were found to deviate into bush away from the gates, especially when they were left open.

It is known from experience on individual farms and from observations of shooters on the Vermin Fences, that shooting can be an effective control method against migratory birds. A loose organisation between the Agriculture Protection Board and the Westonia and Northampton Shire Councils has existed to undertake control by shooting. This has not been undertaken in the five years the agreement has been in existence. Most of the shooting on the fences has occurred illegally, with the shooters leaving before Protection Board officers could apprehend them. Occasionally substantial damage has been done to the fences in the course of this illegal activity. It is pointed out that the tracks alongside these fences are on Government Reserves and are controlled by the Protection Board. They may not be used by the general public without permission of the Chief Vermin Control Officer who at present will issue permits only to official parties such as land survey, flora and fauna research, and geological groups. Unauthorised users may be prosecuted under the Vermin Act, 1918-1962.

In the organisation existing between the Protection Board and Shire Councils, shooters nominated by the Shires are to accompany an officer of the Board along suitable stretches of the fence. In Westonia it is expected that fifteen or sixteen men will be available, in up to four private vehicles. The Protection Board representative is to man a departmental four-wheel drive vehicle and supply 12 gauge ammunition free of charge. Guns would be supplied privately as would costs for private vehicles. In the Northampton area participants would be five or six and private vehicles a maximum of two.

The method has not yet been tried, as the occasion has not arisen. In the time since the organisation was arranged, migrations in large numbers have not occurred in areas where controlled shooting may have been tried. In 1961 fairly large numbers of emus moved south along the No. 1 Fence from pastoral areas but were broken up into small flocks before they approached the agricultural areas.

### COUNTS OF EMUS ON VERMIN FENCES

<table>
<thead>
<tr>
<th>Fence System</th>
<th>Month and Year</th>
<th>Miles Travelled</th>
<th>No. of Birds</th>
<th>Density Emus/Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emu Barrier Fence</td>
<td>September, 1959</td>
<td>64</td>
<td>11</td>
<td>0.17</td>
</tr>
<tr>
<td></td>
<td>October, 1959</td>
<td>26</td>
<td>57</td>
<td>2.19</td>
</tr>
<tr>
<td></td>
<td>June, 1960</td>
<td>64</td>
<td>8</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td>November, 1960</td>
<td>64</td>
<td>27</td>
<td>0.42</td>
</tr>
<tr>
<td></td>
<td>January, 1961</td>
<td>64</td>
<td>17</td>
<td>0.26</td>
</tr>
<tr>
<td></td>
<td>February, 1961</td>
<td>64</td>
<td>4</td>
<td>0.06</td>
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<td>May, 1961</td>
<td>64</td>
<td>16</td>
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<td>November, 1961</td>
<td>64</td>
<td>121</td>
<td>1.89</td>
</tr>
<tr>
<td></td>
<td>March, 1962</td>
<td>64</td>
<td>140</td>
<td>2.18</td>
</tr>
<tr>
<td>No. 1 Vermin Fence</td>
<td>1959</td>
<td>266</td>
<td>195</td>
<td>0.73</td>
</tr>
<tr>
<td></td>
<td>1959</td>
<td>75</td>
<td>76</td>
<td>1.01</td>
</tr>
<tr>
<td>No. 3 Vermin Fence</td>
<td>August, 1959</td>
<td>80</td>
<td>461</td>
<td>5.76</td>
</tr>
</tbody>
</table>
of Westonia. Unauthorised shooting was probably one of the causes of this scattering.

Various suggestions have been put forward with a view to trapping migratory emus on the fences, but such methods are regarded with suspicion. It is known that farmers in the northern wheatbelt have made traps with this intention, and some have driven the birds into funnel-like arrangements but most have ended in failure. A funnel trap has been erected by the Agriculture Protection Board at the 73 mile peg on the No. 3 Fence. This consists of a holding yard, 150 yards square on the south of the fence with a wing 440 yards long on the north to guide the birds into the holding yard. As yet there have been no migrations down the fence to test the effectiveness of this trap.

References


BOOK REVIEW

"THE PRINCIPLES OF AGRICULTURAL ENTOMOLOGY"

By C. A. EDWARDS, B.Sc., M.Sc., M.S., Ph.D. and G. W. HEATH, B.Sc., Ph.D

Rothamstead Experimental Station, Harpenden

Published by Chapman and Hall Ltd., London: 8/-.

"The Principles of Agricultural Entomology" is a general textbook of entomology written primarily for farmers in England and Europe. For this reason many of the pests mentioned will be unknown to the Australian land-owner. This does not mean however, that the book should not have a place in the library of local farmers and orchardists.

The subject matter is divided into three parts under the headings of:

1. General Principles.
2. Discussions, Bionomics and Control of Pests.
3. Key to agricultural pests with an appendix setting out dilutions and dosage conversion tables for insecticides.

Part 1 has an almost universal application and every agriculturalist will profit by reading this section very carefully. It reviews briefly the different insect groups and their allies, discusses factors which influence population fluctuations and sets out principles of pest control. The virtues and failings of the modern chemicals are clearly set out and a plea is made for a long term rather than short term approach to solving pest problems. The farmer is asked to consider the direct and indirect effects of wholesale pesticide treatments on both noxious and beneficial insects, humans, livestock and wildlife, and to heed the many warnings which have already been issued.

Chapter on chemicals and equipment will be useful to most readers as they cover concisely and clearly many modern developments. Some of the actual insects and mites mentioned or figured in the book will be strangers to the Australian farmer, but unfortunately, he will know many of their close relatives and so although some of the specific descriptions will be of little use, the group details will have wide application.

The book is well produced and profusely illustrated with high-class photographs and line drawings. Information is presented in a concise and readable form which makes the publication a useful addition to any farm book shelf.

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