The vermin bonus system in Western Australia. Part 1

C. D. Gooding
THE VERMIN BONUS SYSTEM IN WESTERN AUSTRALIA

PART 1 - THE DISTRIBUTION OF PAYMENTS

By C. D. GOODING, B.Sc., (Agric.), Vermin Control Research Officer.

RABBITS, dingoes or wild dogs, foxes, emus, kangaroos (in certain areas) and wedge-tailed eagles are the most economically important vermin species in Western Australia. They are responsible for heavy losses to the agricultural and pastoral industries and—except in the case of rabbits and kangaroos—vermin bonuses are paid for their destruction.

Other animals, birds and insects gazetted as vermin in certain districts or throughout the State are:—Argentine ants, blackbirds, boody rats, bulbuls, black cockatoos, little corellas, cats, camels, Ceylon crows, donkeys, white-bellied sea eagles, certain finch species, galahs, goats, grasshoppers, giant toads, hares, Indian mynahs, certain parrot species (including "twenty-eights," West Australian rosellas, smokers and West Australian king parrots), pigs, pigeons, Californian quails, sparrows, starlings and English thrushes. Those printed in italics are not established in Western Australia. Boody rats were declared vermin in the Denmark district in 1922 and no attempt has been made to remove them from the list. However, they have now become so rare that every effort is made to prevent the species from becoming extinct. Normally, the legislation is designed to prevent the introduction of undesirable species and to control the pests that are already established.

The early separation of Australia from other land masses resulted in this country possessing fauna which could, in many cases, be described as "living fossils." Most of our truly indigenous species are either of marsupial or lower forms—with the exception of rodents and bats. Their primitive nature has placed them in an
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unfavourable position from the point of view of competing with the higher forms of animal life which have been introduced, and our most serious vermin pests are the introduced species.

The competition which the introduced animals encountered in colonising this new land was not great. For instance, indigenous fauna, such as small marsupials and ground-nesting birds, have been reduced in numbers within living memory by the depredations of foxes. It should be remembered however that man's activities in clearing and tilling land—thus reducing the area of the natural habitats—has in many cases done the work popularly accredited to the fox.

The dingo is in another category. He was probably introduced from the northern land masses, and the most feasible explanation of his presence is that the introduction occurred by some sea route about 6,000 years ago.

During the time that elapsed between then and the advent of white men in Australia, the dingo had sufficient time to reach some sort of equilibrium with the animals that existed at the time of his entry. The dingo is often considered a lesser evil than the fox in the destruction of indigenous fauna—but we do not know what types existed when the dingo arrived in the country and it is at least possible that some were completely killed out before white men reached Australia.

The rabbit invasion of Australia is legendary. From the few that were liberated in the Eastern States to provide food, and to satisfy the sporting instincts of the early colonists, have sprung the countless legions that today plague millions of fertile acres. There was no natural enemy in the Australian fauna that could hold the rabbits in check. The dingoes killed many but their efforts exercised but little control on the spread of the worst of all our pests.

In an effort to control the rabbits—and again to provide sport—foxes were introduced into Victoria about 1868. Like other introductions, they found a favourable environment with practically no competition from other animals and so rapidly extended their territory.

Foxes appear to favour the rabbit-infested areas but are by no means dependent upon the presence of rabbits for their spread. In this State, one of our most serious fox infestations occurs in the Roebourne coastal country where rabbits are not prevalent.

In the development of pastoral areas in the outback, man has provided better facilities for the feeding and breeding of vermin, notably kangaroos. In its unimproved state, much of our pastoral land was waterless for most of the year. Kangaroos would move in when surface water was available but could not remain there for any length of time in normal seasons.

By sinking bores and bringing underground water to the surface, man has provided permanent drinking facilities in many formerly arid regions and greatly increased the area over which the pests can range and multiply.

With no enforced "spelling" of the vegetation due to lack of water supplies, many valuable edible plants and grasses have been "eaten out" by kangaroos—aided of course by the sheep flocks—and the kangaroo has developed into a serious threat to the pastoral industry. Extensive water-boring programmes during the post-war years have resulted in tremendous increases in the vermin populations, and kangaroos are now one of the major factors limiting the productivity of the outback areas.

VERMIN POPULATIONS.

Although numerous articles dealing with the control of vermin have appeared in this Journal over the years little has been
Distribution of FOX BONUS PAYMENTS (ANNUALLY) 1928-34

KEY

1928
1929
1930
1931

Prepared by C. D. Gooding.
done to indicate the areas in which the animals are most numerous, or the areas in which they cause greatest concern to agricultural and pastoral interests.

The series of maps accompanying this article may provide some indication along these lines, but it must be remembered that they are compiled from past bonus payment figures and as such have their limitations.

While they show where most bonuses have been paid, they do not necessarily show where the heaviest densities of pest populations occur. Naturally, in some cases there will be a marked correlation between these two factors, but it does not necessarily follow that the heaviest bonus payments were made in the areas where the pests were most plentiful.

Many factors can influence the number of scalps presented for bonus payments at Vermin Board offices throughout the year, and the outstanding ones are listed as follows:

(1) Density of pest population in the area.

(2) Destructiveness of the particular pest.

(3) Type of farming practised.

(4) Degree of settlement density.

(5) Ease or otherwise of control.

(6) Percentage of carcass recoveries.

(7) General level of prosperity of the farming community.

(8) Conflicting ideals (e.g. fauna conservation).

(9) Level of bonus payments.

(10) Interest of a Vermin Board in handling scalps.

All these factors have influenced the bonus payments from which these maps were compiled, and in the case of the foxes, another factor has operated, in that they are comparatively recent arrivals in this State.
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THE DINGO.
(*Canis familiaris dingo*).

For information on dingo distribution see article "Wild Dogs and Dingoes in Western Australia" by A. R. Tomlinson in Vol. 4 No. 1 (January-February, 1955) of this Journal. It was reprinted as Bulletin No. 2,223. The map which accompanied the article is reproduced here for purposes of comparison.

THE FOX.
(*Vulpes vulpes*).

Foxes were first observed in Western Australia in 1916 and the extent of their spread by 1928 is indicated by the accompanying map. After 1928 (the first bonus figures we have recorded) foxes spread rapidly into the pastoral areas until by the end of June, 1931, they were in every district with the exceptions of Marble Bar and the Kimberleys.

In the South-West portion of the State, the general spread was in a south-westerly direction—the only districts which had not paid fox scalp bonuses up to 1931 being Sussex, Bridgetown, Nannup, Kojonup, Broomehill, Tambellup and Denmark. Of these, all except Nannup paid on scalps by the end of 1933—Nannup finally paying on its first scalp in 1934. It is also interesting to note that the Augusta-Margaret River Vermin Board paid on a scalp in 1929 but made no further payments for four years.

The spread into the northern portions of the State was much more easy to plot. Nullagine, Roebourne-Tablelands and Broome paid for fox bonuses for the first time in 1931; Marble Bar in 1932; West Kimberley in 1934; and Hall's Creek and Wyndham not until 1943.
EMUS of W.A.

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It has often been said that the foxes followed the same path of invasion as the rabbits. Records of bonus payments suggest that they followed a line extending west-north-west from Eucla until they reached the western coastline in the vicinity of Geraldton.

The first recorded instance of the shooting of a fox in this State was in 1917 at Sandstone, but it is significant that the largest bonus payments in the first year were in Dundas, Kalgoorlie, Yalgoo, Dandaragan, Perenjori, Mingenew, Geraldton, Mullewa, Upper Chapman, Northampton and Shark's Bay.

Today we find foxes spread through almost the whole of the State, although they have not flourished in the Kimberleys as they have in the more southerly areas. Competition with wild dogs is possibly greater in the Kimberleys than elsewhere but this alone cannot be the reason for the shortage of foxes as the two species co-exist successfully in the Warburton Ranges.

It seems likely that the high humidity and tropical conditions experienced in the Kimberleys for four months of the year are mainly responsible for the low fox population. The largest number of fox scalps ever presented in the Kimberleys was 69 in 1946—a figure that hardly compares with the 1,115 paid for at Northampton as long ago as 1931, or the 2,509 presented at Kalgoorlie in 1934.

Bonuses payments on fox scalps have varied from 40s. in 1928-31 to as low as 2s. 6d. from 1936-42 but the variations had little influence on the numbers of scalps presented which have risen constantly. The present rate of bonus payment is 4s. and this is supplemented in some cases by Vermin Boards. (This subject will be dealt with more fully in a later article).

THE EMU.
(Dromaius novae—hollandiae).

These birds are found in all parts of Western Australia from the South Coastal region to the northernmost areas. They constitute a menace to cereal crops in the outer agricultural areas (Northern, North-Eastern and Eastern) and it is from these three areas that the most beaks are presented for bonus payments each year.

Emus are protected in all districts west of the No. 2 Rabbitproof Fence and south of the Great Eastern railway line.

The uniform bonus was first paid on emus in 1945. Since then, the numbers of beaks paid for have fluctuated violently and varied from 5,395 to 30,174 in different years. Prior to 1945, when the uniform bonus was instituted, we have records of 56,097 and 15,156 bonuses being paid in of the No. 2 Rabbitproof Fence and south 1936 and 1937 respectively. These payments were made from a special grant provided to meet the emergency which then existed.

It would appear from the bonus figures and from observations made in the field, that the emus breed mainly in the pastoral areas such as the Murchison and North-Eastern Goldfields divisions. When conditions become harsh in these districts, large numbers of the birds move in towards the agricultural areas where they are responsible for considerable damage to crops and fences.

The old Rabbitproof Fences have, in past years, exercised some control over the birds and have partially prevented the invasion from reaching the closer-settled areas. Thus we find that the largest numbers of beak bonuses are paid in the Vermin Board areas of Northampton and Mullewa (No. 3 Fence); Dalawallinu (No. 2 Fence); Mt. Marshall, Muki budin, Westonia and Yilgarn (No. 1 Fence). Most of the shooting of the birds occurs to the north and east of these fences.

In so far as they form a temporary barrier against periodical influxes of emus, the Rabbitproof Fences play a worthwhile part in their control. They assist also in forming a zone of concentration in which control methods may be applied more effectively.

The proposed new Emu-proof Fence, which is being constructed at right-angles to the two existing fences (Nos. 1 and 2), will form a pocket in which the emus which breed between the two fences will tend to congregate. With this added barrier, the control of the pests should become less of a problem than it is today, since they will be more effectively excluded from large areas which they periodically invade at present.
EAGLES of W.A.
BASED ON BONUS PAYMENTS 1947-52

EACH DOT REPRESENTS 1 EAGLE

PREPARED BY
C. D. GOODING.
THE WEDGE-TAILED EAGLE.
(Uroaëtus audax).

The numbers of eagle scalps presented for bonus payments have been gradually decreasing over the years and this may be an indication that they are not now considered the nuisance that they were in earlier years. It is noteworthy that the bonus payments in the pastoral areas vary little in numbers from those paid in the early years, whereas the marked decreases have taken place in the agricultural areas.

Eagles still abound in certain of the agricultural areas, the writer having seen six at one time on a property in the Beverley district only two years ago.

Comparing the maps for eagles and wild dogs it would appear that there is a marked similarity between the two distributions. Either the factors which favour the perpetuation of the wild dog must also favour the wedge-tailed eagle—or alternatively the eagles do the greatest damage to the livestock industry which is similarly prone to losses from wild dog depredations, and consequently greater efforts are made to keep down their numbers in these localities.

Recently a circular was sent out to all Vermin Boards in the State asking for their views on the continuance or discontinuance of the bonus system on wedge-tailed eagles.

The concensus of opinion in pastoral areas was overwhelmingly in favour of keeping the wedge-tailed eagle on the list of declared vermin and continuing the bonus. Opinions varied in the agricultural areas. In the lower South-West, where sheep are not the main livestock on the farms, some boards are of the opinion that the eagles should be protected. In the sheep-farming areas most of the boards were in favour of continuing the bonus, but on the whole there was a much more tolerant attitude towards eagles in the agricultural areas than there was in the pastoral zone.

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