

study wild life apart from the desire to form collections, and that the use of field-glasses and camera is of far more value to the field naturalist than the use of the gun and knife. In this respect we recommend that the Education Departments in each State be asked to institute a Bird Day as now obtains in all the eastern States.

(4) That students of Teachers' Training Colleges should be required to pass tests in natural history based upon wild life preservation.

As regards wider aspects of bird protection, we make the following recommendation:—

That in any drought-stricken area, or areas, absolute and full protection should be extended to all forms of native fauna and flora deserving of such during the period or periods of drought.

(Signed)

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Perth, Aug. 9, 1928.

The Economic Value of Birds

By LANCE LE SOUEF, R.A.O.U., Melbourne.

It is open to question if bird observers and collectors fully realise the effect of the avian life on the country generally. Bird economics will probably be of more importance in the future than systematic ornithology. The writer has been fortunate in having had the opportunity of seeing the position as it exists in sparsely settled districts, and it would appear that there is a great need for more attention being given to the economic study of bird-life.

Hoofed animals are scattered all over the country, where originally only native animals existed. This means that there is now no natural balance, such as would have been the case if ungulate animals had not been introduced, or if they had been indigenous. That such balance is necessary has been proved in other continents. In Australia scavenger birds are working overtime, as it were, in trying to cope with insect pests generated or encouraged by the enormously increased animal population. The outstanding pests that affect cattle and sheep are the tick, the buffalo fly and the blowfly. The losses caused by these pests both directly and indirectly is a very heavy drain on our prosperity. In the case of cattle, it would appear that much of the loss is caused by their running in country where insectivorous birds are the exception instead of the rule, as seed-eaters are by far the most numerous in open districts. This question vitally affects our future development, and it is brought under the notice of the R.A.O.U. as a line for

special investigation. The native birds which are tick-eaters are the Ibises, the Crows, and the Magpie-Lark (or *Grallina*); the last being known in the Kimberley district as the "Stock Inspector," as there are always a few of them to be found near wells where cattle come to water. When a beast comes in it will often stand still while the birds pick the ticks off it. One can see the birds walking under the animals and jumping up to take such of the parasites as may be visible. Neither the Ibis nor the Magpie-Lark is numerous in this district, and as both birds are associated with water their field of usefulness is in any case restricted. The natural enemies of the cattle-tick, both in India and Africa, are Ox-Peckers (*Buphaga*) and a Drongo (*Dicrurus*).

While referring to Northern Australia, it might be mentioned that another phase of bird economy in that region is the enormous number of Budgerigars (*Melopsittacus undulatus*), and many species of Finches. They exist in countless millions, and one cannot help wondering if they have any effect on the plant-life of the country.

From the economic standpoint, the Wedge-tailed Eagle (*Uroaëtes audax*) is probably the most important of all the birds, and it appears to be the least understood. All over the continent a price is put on its head, because it is reputed to kill sheep and lambs. Thousands of eagles are destroyed annually because of this charge. My own experience, in a district where eagles were in hundreds and lambing ewes in thousands, is that I have yet to see an eagle tackling a live sheep. The sheep owner's stand in the matter is logical—he is naturally adverse to having on his property a bird that is capable of killing his stock. However, there is another side to the question in that the bird of prey helps to keep kangaroos and rabbits in check, and also to get rid of carcasses, which would otherwise serve as breeding grounds for blowflies. Could any sheep owner prove the fact that eagles kill 100 healthy sheep a year out of the one hundred million available? It appears that the matter should not be left haphazard to the flockowners to decide, but should be investigated from its economic standpoint in the interests of the country generally.

The crow is another bird whose true economic position requires careful investigation. It is Australia's natural scavenger, patrolling the whole continent, cleaning up any refuse it can find. In settled districts this bird has developed, it is said, the objectionable habit of picking out the eyes of living sheep and lambs. With this factor against it, no one can hold a brief for the crow, for no sheep owner is prepared to see animals suffer without thirsting for vengeance. But the economic factor must not be lost sight of, as the birds appear to be of marked value in other directions, and probably only a small minority do any

actual damage. As the lambing season is short, it is suggested that it would pay to give the sheep special protection during this period, and even feed the crows on culled animals instead of killing them, so that the value of their services in other directions, and at other times, would not be lost.

So far as the sheep industry is concerned, the outstanding trouble is the blowfly, and here again the bird question comes into the picture. Conflicting reports are available as to the value of the Starling in destroying the blowfly. What is the food of millions of starlings? Flocks can be seen in the potato and other crops, where they certainly appear to be working in the farmers' interests.

Enough has been said to show that the R.A.O.U. has a very definite task in co-ordinating the study of bird economics to rural industries, and thus assisting the man on the land to arrive at a true understanding of the value of the bird life. There is no reason why the Union should not play a more important part in the country's development, and, instead of having a limited membership, it might bring in many pastoralists and farmers to assist in this broader aspect of the work. This would make the Union what it should be—a recognised power for good in the country. As a lead it is suggested that the name be altered to Bird Union, with a neat badge of membership, for very few country people understand the meaning of Ornithologist. Then an organised appeal to farmers, graziers, and orchardists for increased membership, with the support of the Federal department of Entomology, might do much to give increased scope and usefulness.

Lyrebird Feeding Young. — There is nothing more fascinating than a fern gully in August just as dawn is breaking, when the bird world greets the new day with a burst of song. Every songster, from the tiny Thornbill to the Lyrebird, contributes its sweetest song to the music of the wild. As the morning advances the songs cease, for there are domestic duties to be attended to. Equipped with the camera, we make our way to the nest of the Lyrebird. The young one is now in the nest, and the adult female is a chain away scratching at a decayed log for food. We note that the pouch under the beak is being packed with worms and other animals, and in a few moments she comes toward the nest, uttering a soft crooning note, which is answered by the nestling. The infant then opens its mouth to the fullest extent, the mother places her beak in the young bird's mouth, and pushes the contents of her beak down its throat. I spent the best part of several days observing this procedure, and was able to secure a number of photographs.—CLARENCE L. LANG, R.A.O.U., Ararat, Victoria.