Western Australian Bird Notes

No. 4 Perth, W.A. December 18, 1946

ELEVENTH MEETING — JUNE, 1946

On June 14, 1946, the meeting of the Western Australian branch of the Royal Australasian Ornithologists' Union was held in the rooms of the Totally Disabled Soldiers' Association, 5th floor, Gledden Building, 731 Hay Street, Perth, the following members and visitors attending: Major H. M. Whittell (chairman), Misses O. Seymour and S. Elliott, Dr. D. L. Serventy, Messrs. T. S. Edmondson, C. F. H. Jenkins, S. R. White, K. G. Buller, A. Douglas, F. G. Doepel, A. H. Robinson, B. Shipway and H. Vennick (from Java).

FAUNA LEGISLATION

MAJOR WHITTELL gave an account of the legislation introduced in the State, from its early days down to the present time, connected with the conservation of the indigenous fauna. He pointed out that the overriding emphasis in the earlier legislation was the preservation of imported game and only such native fauna as had sporting interest was deemed worthy of legal protection.

The earliest enactment on the subject was the Kangaroo Ordinance of 1853 which was directed partially to protecting kangaroos as food for the aborigines and partly as a revenue-raising measure by imposing an export duty of 1/- per skin. In those days many convicts took up shooting as a livelihood on release, as well as jobs as shepherds and station workers.

The first Game Act was passed in 1874 and took notice of introduced game animals primarily. In common with other States, Western Australia embarked on a policy of acclimatisation paying scant heed to the possibility of the animals so imported becoming a menace, not only to agriculture, but to the future welfare of the indigenous fauna. Fortunately many of the introductions failed to gain a foothold despite the legal protection they enjoyed. Thus, as early as 1874, Mistaken or Rabbit Island in King George Sound was set apart as a reserve for acclimatisation purposes, and, in 1884, a Committee was set up to report on the acclimatisation of plants.

The first Parliament under Responsible Government, met in January, 1891, and the following year Royal Assent was given to a new Game Act. The wording of this new Act showed that the public was still preoccupied with the welfare of imported game, but the Act gave power for the creation of fauna reserves—a notable step in the history of fauna conservation in Western Australia. Almost immediately a reserve was proclaimed on the Swan River at Perth.

1896 saw a further fillip given to acclimatisation, when Sir John Forrest, first Premier of Western Australia, with a view to the establishment of what was to become in 1898 the South Perth Zoological Gardens, set up an Acclimatisation Committee under the chairmanship of Sir Winthrop Hackett.

On the other hand a measure which was to have the happy result of keeping the State free from certain obnoxious birds, such as sparrows, starlings, thrushes, blackbirds, etc., the "Act to Prohibit the Importation and Keeping of Destructive Birds or Animals, and to Authorise their Destruction" (now replaced by "The Vermin Act, 1918") had been passed in 1893.

In 1898 an Act which has a large bearing on the retention of land in its virgin state in Western Australia, "An Act to secure the Permanency of Certain Reserves" received Royal assent. It is under this Act that certain reserves may be classed as "A" reserves, such classification ensuring that no "improvements" can be made in them without Parliamentary sanction, nor can they be reduced or done away with except under such sanction. Under this legislation we have our National Parks, which appear to be those reserves which will have the longest life and so ensure longest protection for our indigenous fauna.

Under the 1892 Game Act, in addition to the fauna reserves of the Swan River, other fauna reserves were proclaimed at Bunbury (Leschenault Estuary); Pelican Island (Shark Bay); Monger's Lake (Leederville); Busselton (Vasse River and Estuary); Mundaring Weir; Boolan and Boolathanna (Gascoyne district); Barrow Island and Wagin Lake.

In 1911 a new Game Bill was laid before Parliament when a Select Committee of the Legislative Council was appointed to report on it. The report being favourable, the new Act became law in December, 1912, together with "An Act to Protect the Native Flora of Western Australia." It is under this Game Act (with some subsequent amending acts) that our indigenous fauna today receives a measure of protection. "The Flora Act" has, however, since been superseded by a later piece of legislation.

Many Western Australian animals and birds have received total protection under the "Game Act, 1912" and its amendments, while others receive partial protection. However, imported game and general acclimatisation activities still have a large place in our conservation legislation and a new "Game Act", under modern ideas regarding conservation is desirable. All the other States have modern legislation and our Game Department is handicapped in its duties, as legal custodian of the native birds and animals, by having to operate under a rather antiquated Act.

Many areas have been proclaimed reserves under the existing "Game Act", while, in addition, a clause in "The Land Act, 1918", gives power for the preservation of Fauna and Flora reserves under that Act. A large number of reserves for fauna and flora have been set apart under the "Land Act"—in some cases there has been a duplication of legislation—some fauna reserves having been set aside in two different notifications—one under the "Game Act" and the other under the "Land Act".

Further under the "Permanent Reserves Act, 1898", as already mentioned, certain areas have been set aside as Class "A" Reserves. These include reserves such as National Parks and certain Public Recreation and Tourist Resorts. All these Class "A" Reserves, have been placed under the administration of Boards or Trustees who, almost invariably, when issuing by-laws concerning the areas, include a clause prohibiting interference with the fauna. However, it is only the National Parks which are immune to some extent from interference with the natural habitats of the fauna, so it is to them that we must look for the continued preservation of our fauna.

What should be a further safeguard for indigenous fauna exists in a section of the "Forests Act, 1918", which prohibits any person (without authority) from hunting, shooting or destroying or setting snares for the purpose of capturing any indigenous animals or birds in any State forest or timber reserve. However, there is no assurance that the terms of this section are watched by forestry officials. Still the power exists.

Office-bearers

It was decided to endorse the nomination of the following office-bearers as the branch's representatives on the council: Messrs. Jenkins and Robinson (proposed by Dr. Serventy and Mr. White); Mr. V. N. Serventy was renominated as State Secretary by Mr. Jenkins and seconded by Mr. Robinson.

A Bird-catching Plant

Mr. Douglas exhibited specimens of the viscid seeds

of the Bird-lime Tree *(Pisonia brunoniana)* which was growing in the Museum grounds and which had gummed many Silver-eyes. Other plants were known to be in the Treasury Gardens, Government House grounds and Queen's Gardens, and had caught Honeyeaters, Silvereyes, Goldfinches, Doves—and even rats. Mr. Douglas said that the plant in the Museum had now been removed and it was decided to write to the State Gardens Board and the City Council to have the others destroyed as well.

Abrolhos Islands

Dr. Serventy reported that despite the union's protest, the authorities were pressing on with the scheme to commercialise Pelsart Island as a tourist resort, but the representations made had had some effect in making the promoters conservation-minded. He had learned that Messrs. D. Gaze and A. Fox had leased the buildings on the islands and had begun operations. Since Christmas about 50 or 60 persons had been catered for, the price charged being £6/10/- per week, including boat fare and board. The "Suda Bay" a 42 ft. launch of the Army work-boat type, was used for the crossing and a cook-caretaker permanently employed on the island. Fishing was the main objective of the visitors and no guns or dogs were allowed.

TWELFTH MEETING - AUGUST, 1946

On August 30, 1946, a general meeting of members was held at Gledden Buildings, Perth, the following being present:—Major H. M. Whittell (chairman); Miss V. B. Green, Dr. D. L. Serventy, Messrs. I. C. Carnaby, R. Aitken, T. W. Hogarth, E. H. Sedgwick, V. N. Serventy, K. G. Buller, C. B. Palmer, A. H. Robinson and visitor, Mrs. Harvey.

NATIONAL PARKS

MR. SEDGWICK gave an account of his ornithological observations in the Eastern States whilst with the R.A.A.F. Concluding, he raised the issue of the adequacy of national parks in Australia from the standpoint of fauna preservation. On the whole, he said, there was no clear idea in the public's mind as to how the national parks should be controlled. The Swan View National Park was a total failure, being constantly raked with bushfires and largely given over to the purpose of a public playground. It was now far from being an example of a natural, primitive area. Belair National Park in South Australia was made too accessible. Ferntree Gully, near Melbourne, was saturated with people at weekends and one could not get out of earshot of mandolins. Sherbrooke Forest was still immune, but was a little too accessible to continue so. Mt. Buffalo suffered through grazing being allowed in it and Sydney National Park had motor roads cut throughout its area. Though of adequate size, the accessibility so provided permitted no portion to be free of camp litter, broken bottles and other signs of human activity. The one national park which approached the ideal in Australia was the Lamington National Park in the Macpherson Range in Southern Queensland. There the authorities had made a wonderful job. There were facilities for visitors and tourists, but the bulk of this magnificent park was preserved as a primitive area, save for narrow paths cut through parts of it.

MAJOR WHITTELL said that the whole question of reserves and national parks was now under consideration by the State Fauna Advisory Committee, of which he, Dr. Serventy and Mr. Glauert were members. From articles in "Wild Life" and other journals it was apparent that interest in the subject generally in Australia was developing. There was no doubt that one of the primary functions of national parks—the preservation of samples of the virgin country and its distinctive fauna was being largely nullified by the controlling authority's weakness for improvements and so-called develop-

DR. SERVENTY said that the clashes of interests in connection of national parks had been solved in the United States. There the big national parks, under the control of a government department, the National Parks Service, were zoned and the playground type of development, with golf courses and hamburger stalls, was confined to a small portion. Motor vehicles were only permitted on certain scenic roads and the rest of the park, comprising the greater portion, could only be traversed on foot, or in certain cases on horseback. It was a compromise which served most interests.

THE PITUITARY GLAND AND THE BREEDING CYCLE

The main address of the evening was a talk by DR. D. L. SERVENTY on the role of endocrines in bird behaviour, with special reference to the pituitary gland and its place in the breeding cycle. The speaker said that it was a well-known fact that the essential activities of birds were cyclical or periodic, that is, functions like nesting and migration were regularly recurring phenomena which took place at certain particular seasons of the year. The times when they happened were nicely adjusted to the outside environment. Thus birds migrated at the end of summer and departed north for warmer climes. Nesting started in the spring, usually, and the young were hatched out when food was plentiful and the external environment was at its best. In the Kimberley region and Northern Territory the breeding season, however, was from November to April, namely in the "wet" or rainy period and not in the dry unfavourable spring months.

How did this adjustment come about? It could not of course, be due to any conscious choice on the part of the individual bird, for not only did it not know what it was about when it started nesting, but it had no more direct control of its inner physiological rhythms that we did ourselves. In recent years a great amount of experiment and field observation had thrown much light on these problems and also revealed many avenues along which the field ornithologist could profitably direct his own investigations.

The first conspicuous fact was that the breeding organs, or gonads, waxed and waned remarkably in size during the year, and it was this great increase in size which presaged a whole series of other changes in behaviour and sometimes in plumage. The answer to the question as to what initially stimulated the breeding organ to develop periodically was provided by a number of careful experiments. Professor William Rowan, of Alberta, succeeded in having captive Juncos develop large gonads "out of season" by artificially lighting up their cages and inducing the birds to take extra exercise. Professor T. Hume Bissonnette, of Hartford, Conn., showed that the stimulant was not exercise but really the light itself and his later, more refined experiments proved that not all parts of the spectrum were equally effective in activating the gonads.

Further, it was determined by physiological experimenters that certain chemical substances could also activate the gonads and bring them on to breeding conditions "out of season". Combining all the evidence from the various lines of experimentation it was finally deduced that light did not influence the gonads directly, but acted through one of the endocrine or ductless glands. There were a number of these glands in the body. They had no ducts but their secretions, known as hormones, were passed into the blood-stream which conveyed them to those parts of the body where they would act. The endocrine glands played a most important part as chemical regulators and co-ordinators of the body functions and in a healthy individual their activities were nicely balanced. Aberrations in behaviour were often due to under- or over-secretion of one of these internal-secreting glands. The gland responsible for the activation of the gonads was the pituitary, lying on the ventral surface of the brain. This gland had a number of secretions, each with a specific function, and the one which stimulated the gonad to develop (namely the gonadotropic hormone or secretion) was secreted by the anterior lobe of the pituitary.

The question which primarly interested field ornithologists was what caused the pituitary gland itself to begin secreting periodically and at the appropriate time? Light had been proved, by experiment, to be one of the external factors which stimulated the gland (it was an exteroceptive factor as it was called) and it had been found by further experiment with hooded and blind birds that the light not only acted through the sense of sight, but that the soft skin around the eye was also a receptor. These received the external stimulus which was then passed by the nerves to the gland.

It had been found that the most common exteroceptive factor was the increasing amount of light in the spring. Most birds in the temperate regions appeared to respond to this. In some cases, as in the Emperor Penguin, the New Zealand Parrot *(Nestor notabilis),* and the Abrolhos nesting populations of the Pied Cormorant, the response appeared to be to decreasing amounts of light—these birds being autumn breeders. However light was not the only stimulus and other exteroceptive factors which had been suggested were temperature, humidity, rainfall and food supply. It was difficult to isolate the effective factor out of a number which might be acting simultaneously. Different species of birds, and individuals of the same species, varied in the speed of their response to a particular external stimulus and did not all come into breeding activity at exactly the same time. Natural selection was the final arbiter in the matter and modified the response for the end that was to be served, namely that the young should be hatched at the most favourable period. Any departures from this optimum period would tend to be eliminated by natural selection.

In the south-west of Western Australia, most birds nested in the spring and hence appeared to behave as if the pituitary secretions were stimulated by the increasing hours of daylight. But was it as simple as this? Our birds started breeding very early in the season and some began even before the winter solstice, i.e., when the hours of daylight were still decreasing. Obviously the light factor alone could not be the operating exteroceptive factor here. An opportunity of isolating the factor responsible comes when there is some upset in the local environment which causes corresponding upsets in the local breeding regime. Field observers should be always on the alert to take full advantage of such occasions.

Dr. Serventy said that he had one such opportunity when in March, 1937, he visited the Kurrawang area, following exceptionally heavy rains which filled all the temporary lakes and clay pans, quite transforming the country. Normally the birds in this area nested in the spring, but on this occasion many of the birds he collected had developing gonads indicating imminence of breeding. This was confirmed later (in April) by Mr. K. C. Tiller, headmaster of the Kurrawang school. Here evidently the exteroceptive factor was not light, but it could be rain or food. It might be that the sight of drenching rain and the coming greenness acted through the eye as exteroceptive factors, or perhaps the richer insect and other food then available acted through internal channels, akin to "flushing" in sheep.

In the northern arid parts of the State—south of the Kimberley—Mr. F. Lawson Whitlock had told him that the nesting season for land birds was usually from mid-April to November, but was largely influenced by weather conditions. A prolonged drought would prevent breeding altogether. Quite obviously the exteroceptive factor here was not light but something associated with food or rain or temperature. The exteroceptive factor acts as a trigger mechanism to start the endocrine machinery going so that the breeding will take place at the right period for the survival of the young. The process is quite involuntary. The nature of the environment probably determines which type of external factor is the key one—whether it be light, temperature, rain and associated phenomena, or food. The identification of whichever of these factors was the operative one in pressing the trigger in our various areas was one of the interesting field problems of the future.

MR. CARNABY, in the ensuing discussion, said that the birds in the north-west of Western Australia could be divided into three categories in respect to nesting behaviour, suggesting that one of several different factors were concerned in "pulling the trigger" there. Birds of the first type would nest at any time of the year immediately after good rains. There were many species that belonged to this group including the Diamond Dove, Crested Pigeon, Little Quail, Wedgebill, Black-faced Cuckoo-shrike, Honeyeaters, Blue Wrens and many other song birds. Some of them, like the Black-faced Woodswallow, showed an extraordinarily rapid response and would begin nest-building simultaneously with the fall of rain. The Budgerigar and Chestnut-eared Finch waited until grass had grown following rains. The second group of birds nested at a particular season of the year, but only if the conditions were right; if they were unsuitable the birds would skip the nesting season that year. Such species were many of the Hawks, the Galah, Twentyeight Parrot, Little Corella, Crows, Magpie and the Rainbow-bird. The final group comprised birds like the Wedge-tailed Eagle and the Black-breasted Buzzard which observed a regular nesting period irrespective of the nature of the season.

SPECIATION IN THE PARDALOTES

MR. C. B. PALMER, drawing attention to a paper "A Revision of the Striped-crowned Pardalotes" by K A. Hindwood and Ernst Mayr in *The Emu,* vol. 46, July, 1946, p.49, made some comments on the genetical and evolutionary aspects of the matter.

The co-authors of the paper concluded that three species of stripe-crowned pardalotes exist, (1) *Pardalotus striatus,* with the third primary only edged with white, and wing spot always yellow, found in Eastern Australia and Tasmania; (2) *Pardalotus substriatus,* with the third to seventh, eighth or ninth primaries edged with white, and wing spot orange-yellow to red, found over the whole of the mainland of extra-tropical Australia; (3) *Pardalotus ornatus,* with third primary only edged with white, wing spot orange-yellow to red, found in Eastern Australia, but extending further inland than *P. striatus.*

It was pointed out that *P. ornatus* is midway between the other two kinds in both appearance and range. Although most of the specimens examined came within the three groups, there were some exceptions, which the authors suggested might be hybrids. They stated that the taxonomic status as three species was based on (1) habitat, (2) additional differences, (3) lack of intergradation.

Mr. Palmer did not consider that these arguments were conclusive. Regarding habitat, he said, it did not follow that *substriatus* "prefers" a more arid habitat because it has a wider range. The additional differences, such as tail-index and larger size could well be local variations, or environmental fluctuations. Lack of intergradation is not proved because there was evidence of hybridization both from specimens and field observations; further there was no proof of complete sexual isolation. The speaker did not agree that "it is extremely unlikely that a single alternating Mendelian factor would control such a difference" as the number of primaries edged with white. On the contrary, he thought it quite possible.

The authors mentioned the possibility of *P. ornatus* having arisen as a hybrid between *striatus* and *substriatus,* but said "such a hypothesis faces many difficulties, the greatest of which is the necessity to explain how sexual isolation could have developed between the former hybrid population *ornatus* and the two parental populations when they themselves freely interbred". The speaker said that in the evolution of any species a point must be reached when sterility sets in, and in the case of the striped-crowned pardalotes it was questionable if that stage has been reached. He did not con-

sider that geographical isolation was essential to bring about sexual isolation.

P. ornatus could have arisen by hybridization, by mutation, or be the remains of a variable prototype. The latter would agree with the hypothesis of Vavilov that "the centre of the greatest diversity of a species is the point of origin". The contention that "two species with identical ecologies cannot co-exist in the same habitat for any length of time", depended upon whether the differences had survival value. In the striped-crowned pardalotes it was hard to see that they had, for the differences were slight. Although the three varieties might be species in the making, there was not sufficient evidence at present to prove their specific rank.

In conclusion, the speaker said he did not favour the use of the term "sibling species", for "sibling" is used for individuals of the same parentage in genetics, and it is likely to lead to confusion to broaden its application.

DR. D. L. SERVENTY said he agreed with Mr. Palmer to the extent that he did not consider *Pardalotus ornatus* (using the name in the sense of Mayr and Hindwood) was a valid species. He thought it was nothing more than a hybrid population betweent *P. striatus* and *P. substriatus*. This was suggested by the unusual type of distribution and by the fact that its characters were wholly a mixture or intergradation of those of the other two species, there being nothing peculiar to itself alone. The authors definitely admitted some field evidence of interbreeding between *P. ornatus* and *P. substriatus* and gave particulars of eight skins which they conceded to be hybrids. These they dismissed as of little significance since they represented only 1.5 per cent of the total skins examined. However, the percentage should have been determined in respect of the skins from the area of joint occurrence of *P. ornatus* and *P. substriatus*, the skins from the rest of Australia being excluded. If this were done the true percentage of such "hybrids" would become formidable and emphasise the variability and intermediacy of *P. ornatus*. The speaker cited as an analagous case to the Pardalotes, the hybrid Magpies in the contact zone in south-eastern Australia between *Gymnorhina tibicen* and *G. leuconota*.

Members agreed that the alleged differences in call-notes between *P. substriatus* and *P. ornatus* did not apply as far as the Western Australian individuals of *P. substriatus* were concerned. The usual call of the latter was a two-syllabled note, resembling the words "be quick" or "chip chip" which Mayr and Hindwood attributed solely to *P.ornatus*.

THE ABROLHOS ISLANDS

Reporting on the tourist position on the Abrolhos Island, Major Whittell stated that unfortunately the islands had never been gazetted as a national park. In 1929 they were set aside as a "Public Recreation and Tourist Resort", and a local (Geraldton) board of management appointed. This board issued by-laws in 1932 which gave protection to the bird life, and guns and dogs were prohibited. The islands had also been proclaimed a fauna reserve under the "Game Act". The Chief Guardian of Game (Mr. A. J. Fraser) had lately paid a visit to some of the islands, including Pelsart, and on his return to Perth had expressed the opinion that the local board of management and those engagd in an executive capacity in the tourist traffic, were properly seized with the importance of conservation of the bird life. It was felt that the continuous presence of a watchman on the island woud be an insurance against a repetition of what took place on Rat Island. Mr. Fraser had made arrangements for representation on the board and the position would be carefully watched. Mr. V. N. Serventy (an honorary game guardian) and Mr. S. R. White intended to visit Pelsart Island in December and would report on the situation.

NESTING OF THE BANDED STILT

Mr. Carnaby announced that the Banded Stilt had again nested this year at Lake Grace. He had visited the area a week before, being advised of the event by Mr. B. E. Cannon, but unfortunately found that the birds had again abandoned their eggs as was the case last year. He found about 500 nests in the colony and about 1,000 stilts were feeding in the vicinity. Most of the eggs had been destroyed by foxes and crows. The water level was lower than last year and the water was very salty.

NEWS AND NOTES

HELIGÓLAND BIRD OBSERVATORY

In June last following a Press announcement of the intended complete destruction by the naval authorities of the German island of Heligoland, despite the protests of English ornithologists, local members of the R.A.O.U. council addressed a supporting protest to the Edward Grey Institute of Field Ornithology, Oxford, whlist the general council wrote similarly to the British Ornithologists Union.

Major Whittell has now received a reply from Mr. W. B. Alexander, on behalf of the Institute, dated August 29, stating:—

"I have waited a little time before doing so in the hope that some definite news as to the island would be forthcoming, but have heard nothing further for some time.

"As it happens that I spent longer on the island between the two wars than any other English ornithologist I have been doing my best to persuade the authorities to rehabilitate the island and to allow its inhabitants to return. The 'Times' did not publish a letter I sent it, but I did get one published in the 'Scotsman'. With the support of a well-known judge I had a correspondence on the subject with the Admiralty and I have reason to believe that our arguments have produced an effect. Both the First Lord of the Admiralty and the Parliamentary Secretary expressed their interest.

"An announcement was made by the Admiralty about a month ago that practice-bombing of the island would cease at the end of July, that thereafter the fortifications would be destroyed and that the question whether the inhabitants would be allowed to return would then be considered. It seems obvious that it was not anticipated that the destruction of the fortifications would result in such a complete devastation of the island as was suggested in the cable which led to your letter.

"If there is further occasion to approach the Government on the subject your letter will be valuable as showing that interest in the matter is world-wide."

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Mr. Justice T. P. Draper, a member of the R.A.O.U. since 1917, died at Perth on July 12, at the age of 81. He was born in England on December 29, 1864, and came to Western Australian in 1891. He was an ornithological companion of the late A. W. Milligan and of Mr. W. B. Alexander, but in later years he was not an active member of the Union.

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The "Tom Carter country", in the region of the North-west Cape, was recently revisited by Dr. D. L. Serventy and Mr. C. F. H. Jenkins. The former flew over the area, from Carnarvon to Onslow in a R.A.A.F. Lockheed Hudson and the latter travelled around the peninsula by motor truck—both striking modes of transport compared with the toilsome travels of Carter in the 'eighties and 'nineties when he pioneered Point Cloates station. Mr. I. C. Carnaby is preparing a paper on the birds of the North-west Cape, based on his observations whilst stationed there as a member of the A.I.F.

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During the August school holidays several country teacher-members were able to visit Perth and meet their metropolitan conferes. Among them were Messrs. Eric Sedgwick from Bilbarin and Harley Webster from Smith's Brook, via Manjimup.

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Mr. S. R. White has been appointed organiser of the Gould League of Birdlovers of Western Australia.