WESTERN AUSTRALIA

S.W.A.N.S.

State
Wildlife
Advisory
News
Service

Vol. 3 No. 1
Summer, 1972

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SUMMER, 1972

Issued by direction of the Hon. R. Davies, M.L.A., Minister for Fisheries and Fauna.

Director of Fisheries and Fauna: B.K. Bowen, B.Sc.

Chief Warden of Fauna: H. B. Shugg, A.A.P.A., A.F.A.I.M.

The support of the public is an essential component in any conservation or reserve management programme—but an informed, educated public is needed to ensure its continuing success.

This publication is designed as a medium by which the various organisations, individuals, and wildlife management personnel may be kept informed of the work being carried out by this department; of departmental policies and directions; and for promoting a better understanding and appreciation of Western Australian wildlife and the role it plays in maintaining a suitable environment in which man can live.

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Something to think about....

It seems probable that the current period of man's history will be known to future historians as the "Economic Age"; an age when the importance of the dollar, or pound, yen or deutschmark, overshadowed all other considerations. It is therefore not really surprising to hear cries from some of our more short-sighted industrialists and developers that conservationists are alarmists leaping on the bandwagon of a current fad, and that conservation will one day be a dirty word because thousands of people will be out of work.

But conservation is not a current fad; it is highlighted today because improvements in education and communications have brought home to people the realisation that the biosphere is not a supermarket, the shelves of which are restocked daily. If conservationists and ecologists are alarmist it is only because they are aware that time is running out and they feel a sense of responsibility for future generations. The optimistic ostriches, like Dickens' Mr. Micawber, may expect "something to turn up", but has it occurred to them that by the time this panacea for the world's ills is discovered all the world's fossil fuels may be exhausted—what price unemployment then!

The voices of conservationists are being heard at last, and the professionals are receiving the support of public opinion. Dear old apathetic Joe Blow has woken up to the realisation that someone is mucking up his country and his kid's future along with it. The despoilers don't seem to care—why the hell should they, they're making a fast buck! After all this is the Economic Age and the Holy Dollar comes first . . . . doesn't it?

IN THIS ISSUE . . . .

A REVIEW OF THE 1971/72 South-West Duck Hunting Season

by Dr T. L. Riggert

The combination of a poor waterfowl breeding season during the winter of 1971, and heavy rains in the latter part of November, resulted in below normal bags at the opening shoots of the annual waterfowl hunting season.

Bag checks by nine Fauna Wardens showed that 288 shooters took 1,150 ducks; thus averaging approximately two birds per shooter for each of the afternoon and morning shoots. There were some exceptions when shooters concentrated their efforts on stock dams or small saline lakes where full bags of maned geese or mountain duck were taken. Many duck bands have been received from Honorary Wardens and shooters, and the co-operation of these people is greatly appreciated. Please return all duck bands as soon as possible, as this information is of paramount importance to the waterfowl research programme.

As the season progressed, bag checks showed a general increase in the numbers taken, and grey teal was the most prevalent species in the bag. During the last two weeks of the season, shooters had little difficulty in obtaining their quota and concentrated mainly on the black duck. Although the season got off to a slow start, for those shooters who persisted, the shooting was found to be excellent and the birds in prime condition.

The response of duck shooters to the licensing requirements (which came into effect this year), proved to be most satisfactory. The Department's Supervising Warden, Mr S. W. Bowler, said that field checks by his staff and by Honorary Wardens had shown that very few shooters were found not to be carrying a duck shooter's license. The total number of licenses sold slightly exceeded 5,000 which means that over $10,000 has been deposited in the Fauna Conservation Trust Fund for use on conservation projects. The use of the money in this trust will be discussed by the Western Australian Wildlife Authority and recommendations made to the Hon. Minister for Fisheries and Fauna.

The research information cards which have been returned since the closure of the duck hunting season show that shooters concentrated on three main areas this year. In the North, the centre of shooting activities was in an area from Morawa to Coorow, with good isolated shooting spots on the lower Murchison and Lake Wannamal. Shooters from the Metropolitan area concentrated mainly on the Wagin, Katanning, and Dumbleyung areas. Fauna Wardens were actively engaged in checking duck shooters' licenses on Lakes Ewlyamatup, Coyrecup and the Coblinine River Flats, east of

Black Duck (*Anas superciliosa*). Overall, this was the main species taken in the last season

Katanning, throughout the entire season. Good isolated shoots, especially on maned geese, were also reported in the southern Lake Grace area. The third area on which shooters congregated was the wetlands around Esperance. The large quantities of surface water in this area made opening shoots poor and there were many reports of young birds still unable to fly. However, this situation had improved by the 1st of February and the main species of ducks taken were black duck, grey teal and some mountain duck.

On the 17th and 18th of February, an aerial survey was carried out to assess the number of waterfowl still remaining in the shooting area. It was immediately noticeable that the high temperatures of December and early February had dried up vast areas of wetlands that had been covered during the October aerial survey.

The wetland areas severely effected were Wagin, Kojonup, Cranbrook, Lake Muir, and the northern region of Lake Grace. Good surface water was still present east of Katanning and along the southern coast to Esperance. However, east of Esperance the surface water along the coast diminished rapidly and little could be observed beyond 50 miles east of Esperance.

The Swan Coastal Plain with its estuary systems is carrying large populations of ducks and swans. This is the normal migrating area for waterfowl which leave the inland drought areas and reside on the coastal areas throughout the summer. No doubt the massive drainage programmes on the Swan Coastal Plain have greatly reduced the summer habitat available to these birds. For this reason the Mandurah estuary has been set aside as a waterfowl sanctuary.

In general, the aerial survey showed that large concentrations of waterfowl were still present in the South-West and, if winter conditions prove favourable, bag quotas and the length of the shooting season may be extended in the forthcoming year. No doubt the restrictions which have been placed upon duck shooting over the past three years are now paying dividends, as a large breeding population of birds is still present. The present day total protection for this breeding stock, indicates a bright future for waterfowl in the coming year.

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Our Diminishing Heritage

The Freckled Duck *(Stictonetta naevosa)* is typical of much of our fauna in that it occurs only in Australia and is of outstanding interest to science. Dr H. J. Frith, who has made a study of it, considers it to be one of the most primitive members of the waterfowl family, and that it is possibly close to the ancient progenitor from which all the modern ducks, geese and swans evolved.

Freckled Ducks have been recorded in many parts of the continent, but are only found regularly in south-east Australia and the south-west of Western Australia. During the breeding season they are to be found in densely-vegetated swamps; in the non-breeding season movements are nomadic and their range extends considerably, particularly under drought conditions.

Breeding normally takes place from September to December, but records indicate that like other inland species, the Freckled Duck will also breed at other times when there is high rainfall or flood conditions. In Western Australia at Benger Swamp, this bird breeds slightly later in the year (October to December); Benger Swamp floods annually, and breeding regularly follows this seasonal pattern.

In 1969, the Freckled Duck was a game bird in every State except New South Wales. Western Australia declared it a protected species for the 1970, and subsequent duck shooting seasons. *The Duck Shooter's Guide* annually asks shooters to conserve the Freckled Duck, and thousands of illustrated leaflets have been distributed throughout the State drawing attention to the precarious status of the bird.

Freckled Duck (*Stictonetta naevosa*). Showing the obvious freckled appearance

Despite this publicity, reports were and still are received of Freckled Ducks being shot "accidentally". H. J. Frith in *Waterfowl in Australia* offers the opinion that . . . "Although it is very distinctive in flight, many shooters claim inability to recognize it . . . A skilled shooter who knows his ducks and selects the bird he wishes to shoot in a flock never seems to secure Freckled Ducks".

Indications are that the Freckled Duck population continues to diminish. In an attempt to prevent virtual extinction in this State, the Western Australian Wildlife Authority recently recommended that the bird be declared "a rare and endangered species". The notice declaring the additional protection of the Freckled Duck appeared in the *Government Gazette* on March 17, 1972. The maximum penalty for illegally taking this bird is thereby increased from $400 to $1,000, and this should impress on shooters the need to take special care in identification.

Illegal shooting is only part of the problem. Dr T. Riggert, the Department's Senior Waterfowl Research Officer, feels that the Freckled Duck is endangered mainly through the tremendous reduction of Western Australia's wetlands. The prime wetland areas extend from the coast to approximately 150 miles inland in the South-West Land Division and 50 miles inland in the Eucla Land Division. The wetlands within these two land divisions vary greatly; but the majority of the areas are either brackish or saltwater. Freshwater wetlands are generally limited to the coastal areas with only a few containing water throughout the summer months. **The breeding habitat of the Freckled Duck appears to be restricted to fresh water.**

The problem therefore is twofold. Reduction of habitat is certainly the major cause of the diminishing numbers of Freckled Ducks. Add to this the pressures of illegal shooting and we could see the extinction of this species in Western Australia. In addition to rearing birds in captivity, another solution would be to obtain more information on the breeding areas of the Freckled Duck, collate this information, and create more waterfowl sanctuaries. The Department's Waterfowl Research Section considers this work to be high on the priority list for future research. Honorary Fauna Wardens and duck shooters can help by providing much needed information on the numbers, habits and distribution of the Freckled Duck. If you see one, and are sure of your identification, please report the time, date and place of sighting, and any observations of interest to Dr T. Riggert, c/- Waterfowl Research, Department of Fisheries and Fauna, 108 Adelaide Terrace, Perth.

FRECKLED DUCK

Stictonetta naevosa

The Freckled Duck floats higher in the water than other common ducks

Distribution. Solid dots indicate recorded sightings. Open circles refer to breeding records. Shaded areas show where Freckled Ducks are found, even if in small numbers, at all times in most years

DISTRIBUTION:

Breeding range is virtually restricted to south-east Australia and the extreme south-west of Western Australia.

During non-breeding season ducks may be found almost anywhere on the waters of inland Australia.

HABITAT:

When breeding—mainly confined to swamps with dense vegetation.

When not breeding—may be found in most other inland wetland habitats.

LOOKS:

Male—very dark; head and neck almost black, elsewhere very dark brown uniformly freckled (finely speckled) with white or buff.

Female—lighter colouration than male; light brown on most of body, darker on head and neck; freckles—pale buff.

Iris—brown.

Legs and feet—slate grey.

Bill—slate grey. Males have red base to the bill during breeding season.

SIZE:

Adult male: Length—22 in. (556 mm) average.
Wingspread—32½ in. (822 mm) average.

Adult female: Length—20 in. (508 mm) average.

Wingspread—31 in. (784 mm) average.

WEIGHT:

Male—34 oz. (969 g) average.

Female—29 oz. (842 g) average.

NESTING:

Normally September to December, but birds can breed at other times, dependent on favourable climatic conditions. During breeding season pairs remain isolated; when not breeding birds are gregarious in nature.
Clutch size—varies from 5 to 14 eggs; average 7.

Eggs—cream or ivory; glossy and smooth; shell thick and softer than other duck eggs.

DIET:

Algae; aquatic grasses; seeds of aquatic plants, sedges, nardoo, clovers and thistles; plankton; insects.

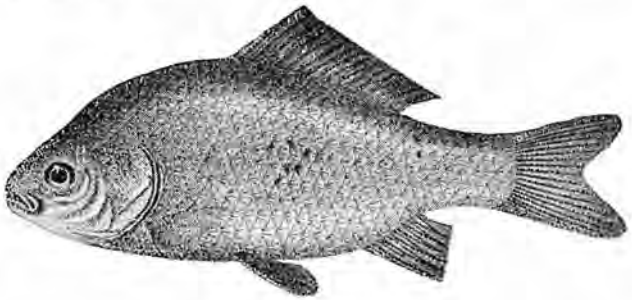
A NEW MENACE

The Department would like to hear from anyone who has made a positive identification of European Carp in Western Australian waters.

Great care is needed to distinguish the European or Common carp *(Cyprinus carpio)* and its domesticated reddish-coloured strain called "hi-goi" carp, from the Crucian carp *(Carassius carassius)* and the closely related reddish-coloured goldfish *(Carassius auratus)*. Figures 1 and 2 show two of the fish, and Figure 3 shows the main features which distinguish the European Carp from the Goldfish—these are the mouth which protrudes and is surrounded by fleshy lips, and the two pairs of barbels on the upper lip.

European Carp are notorious for degrading the aquatic environment. In feeding near the bottom they roil (make very dirty) the water through their normal feeding habit, and make it unfavourable for plant growth, other fish, fish food organisms and for stock and domestic use. They destroy aquatic vegetation, compete with other species for bottom food, interfere with the spawning of other species and frequently crowd out other fish.

European Carp have caused insurmountable problems in Victoria where irresponsible action by one short-sighted individual led to their introduction and rapid spread through many waterways; they have now reached South Australia, much to the consternation of that State's Fisheries Authority.



Goldfish *(Carassius auratus)*

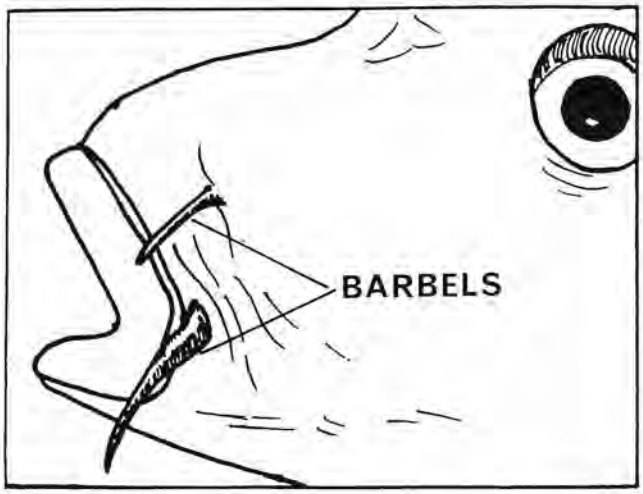
Are they now in Western Australia? In October, 1970, 120 Japanese hi-goi carp were released by the Main Roads Department into a lake at the Narrows Interchange in Perth. The object was to control the weeds and establish a balanced lake system. The hi-goi is a selected strain of the European Carp; it is merely a colour variation of the same genus and species. At this Department's request, the Main Roads Department drained the lake, reducing it to a number of small pools, into which fish poison was introduced. No hi-goi were found. It is thought that cormorants feeding on the lake may have eradicated the fish. Fortunately, it hardly seems likely that they found their way into the Swan River because the only outlet would be during storm water conditions which have not occurred since the fish were introduced.

Common Carp *(Cyprinus carpio)*

Although carp are on the Commonwealth schedule of prohibited imports, hi-goi are still bred for sale from existing stocks and sold for use. It is clear that existing legislation needs to be tightened up, for there is evidence that hi-goi carp continue to be imported in consignments of goldfish.

It is not known for certain if the hi-goi carp has the same undesirable qualities as the European carp—but since they are the same species it does seem very likely; and in any event they would probably revert to the natural strain following successive breeding in natural lakes. This is really beside the point; enough stable doors have already been shut after horses have bolted and the slogan must surely be "better safe than sorry".

The Department is currently interested in obtaining more information about the status and distribution of carp in Western Australia, and if any carp are found, the situation will require very careful review. Honorary Fauna Wardens, Honorary Fisheries Inspectors and members of the public are asked to assist by notifying any positive identification of this noxious fish. Information, and the specimen if possible, should be sent to Dr N. Morrissy, Western Australian Marine Research Laboratory, Elvire Street, Waterman, (Tel. 47 1366), or handed to a local warden or inspector.



Close-up of mouth of Common Carp showing barbels and fleshy lips

CONSERVATION OF KANGAROOS– W.A.'s APPROACH

The kangaroo situation in Western Australia often comes under fire, not only from opposing forces within our own community but from other States, and strong demands are made from both sides for Government action. But what action can satisfy all segments of our community when each faction can present a reasonably logical argument in support of its case?

The controversy about shooting kangaroos is in fact a three-sided affair. Some regard kangaroos as a pest in need of control; some see them as unique native marsupials demanding complete protection and are sickened by their callous slaughter, and others regard them as a resource that should be harvested.

It is the function of government to respond to all reasonable points of view in the community, and to this end the Minister for Fisheries and Fauna has established regulations which provide for a management scheme that will conserve kangaroos and yet, at the same time, regulate their cropping and provide pastoralists and farmers with protection from damage to pastures and crops.

The long term survival of kangaroos is of paramount importance, not only because we all have a particular feeling for them as part of our national heritage and as an adornment to our national emblem, but because native animals have a right to live and should not be destroyed irresponsibly. The present management programmes in operation in Western Australia will ensure this, and the Government shares the concern of conservationists for the welfare of native fauna.

Readers will be interested in the report on kangaroos of the House of Representatives Select Committee on Wildlife Conservation published in November 1971. This Committee visited Western Australia twice during 1971 and publicly announced that Western Australia was well ahead in conserving kangaroos and that they had seen more kangaroos here than in any other State.

(This report is available at a cost of 90 cents from the Commonwealth Book Shop, 4th Floor, Commonwealth Centre, 1 St. George's Tce., Perth. *Editor).*

CANCELLATION OF APPOINTMENT

By notice in the *Government Gazette* on the 4th of February, 1972, the appointment of Mr John Alexander Ingram as a Warden of Fauna under the Fauna Conservation Act, 1950-1970, has been cancelled.

THE AUSTRALIAN SEABIRD GROUP

On the evening of Thursday, November 25, 1971, in Canberra, it was decided to form an Australian Seabird Group. The meeting consisted of Dr P. J. Fullagar, Dr G. F. van Tets, Mr A. K. Morris and Mr M. Carins. Dr Fullagar acted as Chairman and the R.A.O.U. was represented by Dr van Tets. Those interested in seabirds in New South Wales were represented by Mr Morris, and similar interests in Victoria and Britain were represented by Mr Carins, who acted as secretary during the meeting and was appointed acting secretary for the group.

The aims of the groups were discussed at length and are envisaged to be, with geographic modifications, those of the original "Seabird Group" in Britain.

(1) To support and promote the study of seabirds.

(2) To maintain a list of people interested in the seabirds of Australasia, Antarctica, and Oceania; to discover the nature of their current interests and activities; and to make them known to each other.

(3) To build up a national and international network of active workers prepared to cooperate in the development of studies of all aspects of seabird biology.

(4) To circulate a newsletter containing news and views of work in progress.

(5) To encourage new work in fields which receive inadequate attention.

The meeting, when considering a motif, decided to adopt the White-faced Storm Petrel *(Pelagodroma marina)* as its emblem. This bird is both distinctive and common in much of the area.

Anyone interested in further information is asked to write to:—

The Acting Secretary,
Australian Seabird Group,
P.O. Box 235, Civic Square,
A.C.T. 2608.

GREY KANGAROOS NOT VERMIN

By notice in the Government Gazette, February 18, 1972, the Agriculture Protection Board cancelled the declaration of Grey Kangaroos *(Macropus fuliginosus)* as vermin in the muncipal districts of Wagin, Dumbleyung, Moora, Lake Grace, Wongan-Ballidu, Mingenew, Mount Marshall and Kondinin.

NEW HOLLAND HONEYEATER BRED IN CAPTIVITY

A report from Metropolitan Fauna Warden, Mr A. R. Marshall, prompted the Editors to visit the aviaries of Mr Alwyn Pepper of Scarborough.

It was indeed a delight to observe birds kept in ideal conditions and cared for with enthusiasm and dedication. Mr Pepper's main aviary is of considerable extent and is a walk-through type. Bottlebrush, Pines, Banksia, Eucalypts, Acacia and Hakea are all well-established, while the ground cover is of Grevillea, Kangaroo Paw and perennial grasses; running water is an added attraction.

Birds sharing the aviary are: one pair of Scarlet Robins, one pair White-naped Honeyeaters, Gouldian and Painted Finches, several Peaceful Doves and three Red-plumed Pigeons.

The smaller aviary is about 14 ft. x 11 ft. x 10 ft. and it was in this aviary that Mr and Mrs Pepper successfully bred the New Holland Honeyeater. It is not known whether this is the first successful breeding of this kind in captivity; but first or not it is a notable achievement requiring considerable time and patience. The aviaries are indeed a model for other aviculturists.

A report by Mr Pepper on the successful breeding was submitted to the Chief Warden of Fauna. This report reads:

"As an aviary inmate the New Holland Honeyeater *(Phylidonyris novoehollandioe)* is a very handsome bird strikingly coloured black, white and yellow. Given the correct conditions it is apparently quite hardy and will breed successfully in confinement. To be able to observe these lovely birds at close quarters, and study their behaviour is indeed a fascinating and rewarding pastime. They are so vastly different, in all respects, from the usual run of everyday finches, parrots, etc. Please don't think I'm knocking these latter species as I've kept them for forty years and will probably continue to enjoy their company.

Watch them gracefully and effortlessly twist and turn in mid air as they hawk for insects. Watch their fantastic flash of gold as they flit from flower to flower to cling precariously whilst probing their long curved bills deep into colourful blossoms in their never ending search for nectar.

The New Holland's strong territorial instinct demands a roomy aviary to themselves. My wife placed four wild trapped unsexed birds in her 14 ft. x 11 ft. x 10 ft. aviary in January 1971. They were very active and vocal in attempting to gain dominance over each other. With the advent of early spring their aggressiveness increased. The birds were then caught and banded with different coloured plastic rings, in an effort to determine the sexes by observation of behaviour. A few days later one bird was found dead—cause unknown—so we watched the remainder very closely. One large bird continuously chased, with much bill snapping, only one of the inmates. The submissive bird was trapped and removed to a separate enclosure. By now my wife felt sure she had a true pair. As spring progressed the larger bird's plumage became much darker and vivid. Observations proved this bird the male whilst the female remained smaller in stature and duller in colouration. From time to time various species of finches and doves were experimentally introduced. No dice. The honeyeater's territorial aggressiveness forbade other inmates—with one exception. A pair of ground-loving Red-Plumed Pigeons (Spinifex) *(Lophophaps ferruginea)* were not molested in any way. In fact the pigeons built their typical ground nest, and closely sat on two white eggs, through a week of very unseasonable bitter cold and hail with ice piled around the nest perimeter. Unfortunately the very frigid weather proved fatal to the female pigeon.

To return to our honeyeaters. Close observation showed the female commencing to carry building material into the dense top of a pruned pencil pine tree. The nest site was some eight feet off the ground. The bird always went through the side of the tree and emerged through the top. It was not until two weeks later (29/10/71) that the female commenced sitting. At no time did we inspect the well-hidden nest so we can not say how many eggs were laid. See later notes.

On the 11th November both birds were running a shuttle service to the nest with sugar-water and small insects. I confess my wife and I were as excited as the actual parents. The parent birds were naturally kept very busy until the young were ready to leave the nest. A bucket of freshly picked blossom would immediately attract the female and woe betide the henpecked male if he dared approach the flowers whilst the female was feeding. This aggressive female behaviour seemed strange in view of later events.

On the 21st November, which was three days before the first youngster emerged, the male became the aggressor in no uncertain manner. With snapping bill he swooped at his lady love at every opportunity. Her only refuge was the nesting site.

The eagerly awaited day dawned on the 24th November. Number one baby emerged about four p.m. and fluttered to a low bush. Horrors! We belatedly remembered the killer reputation of the

New Holland Honeyeater feeding the young in the nest

Red-Plumed Pigeon. My wife frantically set a trap and in a few minutes the unfortunate pigeon was under lock and key and transported to the Colonies. In other words transferred to another aviary.

Now commenced a week of apparent ferocity on the part of the male. He drove, bullied and snapped at the unfortunate female until she cowed hidden in a far corner. Any attempt on her part to approach her babies was met with onslaught. Baby number two emerged from the nest two days after number one.

Well, I don't mind admitting as a mere observer I was terribly upset by this seemingly aggressive behaviour and wanted that male out pronto. In fact, if I'd had a say in the matter, it would have been felon No. 2 for the Colonies. But it was not my show. My wife said no! I can't ascertain whether this decision was purely womanly cussedness on her part or perhaps her wifely intuition, from practical experience, told her that this display of male dominance was all bluff.

After a few days of this behaviour we realised there were no feathers flying and the female was uninjured so presumed some type of ritual was involved. However, by the 2nd December peace reigned and the female was permitted to help feed the young.

For the first three weeks the two youngsters continued to perch, side by side, on a low well hidden branch a few inches off the ground. Feeding by the parents was observed to the third week out of nest. It was not until five weeks out of nest that the young lost their inherent shyness and left the lower foliage to gracefully take their place with their parents in the upper region of the aviary. On one occasion, when Grey Butcher Birds *(Cracticus torquatus)* appeared in the vicinity, the adult male flew to a high vantage point and gave the warning call. One precocious youngster ignored the warning and moved around the food container. The male quickly flew down, chased the errant baby to cover, and then flew back to the vantage branch.

Food: Several varieties of profusely flowering fuchsias were planted in the aviary. The only shelter was obtained from several established cypress trees. Three *Eucalyptus torquata* were also planted but have not flowered to date. Every few days vases of fresh flowers were placed on the ground, i.e. eucalypt, melaleuca, banksia, leonotus, honeysuckle and hibiscus. Pollen is much sought after and is a valuable protein addition. I have closely observed honeyeaters gather the pollen from hibiscus blossom. A 20% solution of raw sugar (weight by volume) with a few drops of infant strength Pentavite (vitamins) was supplied fresh daily. This is the honeyeater's mainstay food and must never be depleted. We selected the 20% solution because the famous Brazilian ornithologist Dr Ruschi feeds a similar solution to his fantastic old world humming birds.

A 15-watt pilot globe is always left burning at night in the aviary but when nest building commenced this was stepped up to 40-watts. The numerous flying insects attracted by the light make a tasty breakfast. Indeed on occasions the birds will even nocturnally hawk for months etc. around the light. Many moths find their way into the sugar solution and become trapped therein. Strange to say these immobile insects are ignored by the birds.

Our quarter acre is heavily planted with Australian native trees and shrubs and accordingly many insects thrive therein. (No blasted insecticides!) Many of these insects naturally fly through the aviary and are immediately hawked in mid air. Cicadas are a popular repast. Thistles planted thickly are a good source of green aphids.

Copulation: The female invites copulation by crouching low on the perch, her outstretched wings fluttering rapidly to display large areas of yellow. This display continues whilst copulation takes place. The male displayed enlarged areas of white around the head. Excited squeaks emanate from one or both birds.

Bathing: The New Holland bathes several times a day. Communal bathing is a popular pastime. Late afternoon is a particularly happy, carefree bath period. Wet foliage bathing is a picture of delight. The birds sometimes like to sunbathe on the ground with ruffled feathers and wings outstretched in the manner of doves.

Nest: The nest, which was examined some weeks after the young had departed, was the typical cup-shape constructed of fine grasses, rootlets and lined with zamia down, cotton wool and hair from our Corgi dog.

After the young had departed the nest we fixed two microphones to trees in the aviary in order to record calls. Over each mike was tightly stretched a white cloth. The birds found these mikes irresistable and continuously pecked the cloth. After one week both white cloths were found to contain a large hole.

Calls: The following calls have been noted in the captive birds:

(1) The *Territorial Call* of this species is a sustained, loud-ringing melodious call.

(2) A chattering call in which all birds join in the chorus denotes *Anger.*

(3) The *Danger Imminent Call* is a sharp "chit", sometimes twice, and all birds dive for cover and remain very still and silent.

(4) The *Warning Call* is a loud liquid note repeated with machine gun rapidity usually from a high vantage point.

(5) We have both listened intently at the nest for any sign of a feeding call but to no avail. Possibly the young have a feeding call beyond our middle-aged hearing range. Even the first week out of nest the babies were very silent and it was not until the seventh day (1/12/71) that I heard a quiet "chuck" as a communication which was answered by its erstwhile nest mate.

(6) *? Call:* At times the male sings a low sweet melodious canary-like call.

(7) *Roosting Call:* All birds join in a series of sharp hi-fi squeaks usually a half hour before dark. These calls are apparently to identify their roosting sites.

(8) *"Be-Quick" Call:* Several times we have been fooled into mistaking a "Be-quick" call of the New Holland for the familiar call of the Red-tipped Diamond Bird *(Pardalotus substriatus).* This call was only heard in the spring.

(9) *Excited Call:* The sound of running water brings forth an excited melodious repeated call "Cheop".

(10) Another excited call is loud hi-fi "Chee-ep".

New Holland Honeyeater—male.

(11) *? Call:* A sharp repeated clicking exactly like the "click" of hedge shears—particularly in the early morning and sometimes at night. The birds make this clicking whilst perched.

(12) *Mating Call:* See copulation.

These birds were inspected by Mr Bob Marshall, Fisheries and Fauna Department on 25/11/71 and 7/12/71, and by Mr Brian Hutchison, President W.A. Naturalists' Club on 5/12/71.

References: "Birds of Western Australia" by D. L. Serventy and H. M. Whittell; National Geographic Magazine", Jan. 1963. New Holland Honeyeaters bred by Mrs Joan Pepper.

HONORARY FAUNA WARDENS APPOINTMENTS

VICKRIDGE, Leonard Frederick Willot, of 247 High Street, Fremantle (Gazetted 17/12/71).

PESTELL, Anthony John, of Gidgegannup (Gazetted 31/12/71).

ORCHARD, Laurel Doreen, of Kulja (Gazetted 28/1/72).

McNEILL, George Douglas, of Box 58, P.O. Dalwallinu (Gazetted 28/1/72).

INGRAM, John Alexander, of 21 Hillside Crescent, Gooseberry Hill (Gazetted 28/1/72).

AITKIN, Raymond Alexander, of 161 Bradford Street, Mt. Lawley (Gazetted 28/1/72).

WATTS, Sydney Raymond, of R.M.B. 212, West Pingelly (Gazetted 18/2/72).

MILLER, William Albert, of Narembeen (Gazetted 18/2/72).

TOBIN, Kevin Peter, of Merredin (Gazetted 18/2/72).

WELLSTEAD, William Max, of Bremer Bay (Gazetted 18/2/72).

HONORARY FAUNA WARDENS CANCELLATIONS

COOLEY, Henry Hogg, of Coombe Street, Collie (Gazetted 18/2/72).

WATTS, Leonard Stanley, of West Pingelly (Gazetted 18/2/72).

SIMPSON, Desmond Harry, of Lot 2, Gardiner Road, Karragullen (Gazetted 18/2/72).

FIRE, FLORA AND FAUNA

The Department recently received a letter from an Honorary Warden criticising controlled burning by the Forests Department during spring. "Why," asks our correspondent, "burn in Spring when the flowers are in bloom and all the birds are nesting; why not burn in Autumn?"

In fact, one might ask, why burn at all?

The answer is not a simple one; burning is carried out for a number of reasons and these were comprehensively explained in "Forest Focus", No. 3, December, 1970, and acknowledgement is given to that source for much of the information in this article. Basically the Forests Department burn in order to reduce fuel for accidental fires, but **not** to burn is "preservation" not "conservation", for fire is an integral part of nature in many forest areas. Research has shown that the native flora of the south-west forest belt, having evolved in a fire environment, has inbuilt mechanisms to ensure its survival of occasional fires; in fact many wildflowers, shrubs and trees depend on fire for germination and their continued existence.

This burning for rejuvenation has also been shown to be of importance in the conservation of fauna, because in the long term it conserves the habitat of many animals. In October 1969, Forests Department research officers made a study of the effects of aerial controlled burning on kangaroos and wallabies in the jarrah forests. (Previously, other animal, bird and wildflower observations have been carried out over wide areas of state forests in respect to prescribed burning.) In the study, a 60% burn was achieved. Approximately 2/3 of the kangaroo population left the area of the burn for cover in adjacent forest outside the unit, while only 5% of the wallabies left the area. No evidence of injury or mortality was found.

The rotational controlled burning programme undertaken by the Forests Department is largely done in spring on a four to six year cycle. This decision is influenced by a number of factors.

Research has shown that satisfactory weather conditions occur most frequently and most reliably in spring, starting during October in the northern forest areas and progressing through to December in the southern karri forest.

To achieve a similar fire intensity and safety from "breakaways" during autumn burning, the summer drought effects must first be alleviated. This generally requires three or more inches of rain to return tree bark, scrub foliage and heavy fuels such as ground logs (which when wet provide safe refuge for many small animals) to the low inflammability levels of late spring. Occasionally such rain falls in early April and extended suitable burning weather **may** follow. However, this is unreliable, as additional rain may prevent further burning.

For these reasons, reduced scenic values are justified once every five or six years when rotational burning is carried out on an area. Even then, the conditions conducive to good controlled burning occur after the main flush of spring flowering so that burning begins as the wildflower display wanes.

Even under the best conditions there are always pockets of forest unburnt due to insufficient and moist forest litter. These moist areas and swamps in the forest give shelter to numerous small animals and birds. During autumn burning a more even and more intense burn will result, with consequent danger to forest wildlife.

That some nests and young birds are destroyed during controlled burning is not denied. However, spring burning allows a slow-moving fire of low intensity, enabling fauna to escape; the low flame (ideally 12 to 18 inches) does not destroy all of the ground cover nor penetrate the top soil. During autumn burning the fire may move too quickly and burn too intensely to prevent fauna escaping and will result in greater destruction of habitat.

This Department and the Forests Department are aware that there is still much to be learned about the effects of fire on the flora and fauna of the southwest, and the Forests Research Branch at Dwellingup is undertaking research into the effect of burning on plants, birds and small animals. This Department's Fauna Research Branch has been undertaking similar research in relation to the effects and use of fire on fauna reserves. It is apparent that in general the policy of autumn burning is not justified.

CROCODILE RESEARCH IN QUEENSLAND

A Government appointed zoologist is to undertake research into crocodiles and the crocodile skin industry in Queensland. At present there is no legislation governing crocodiles in that State, but it is expected that the Department of Primary Industry (Queensland's fauna authority) will eventually control crocodile harvesting.

Not before time; other States have for many years made numerous requests to Queensland to introduce legislation which would prevent interstate crocodile poaching.

Some preliminary surveys have already been undertaken, and the zoologist's initial study is expected to be completed within three years. Both the saltwater and freshwater crocodile are already protected in W.A. Protection for the Saltwater crocodile followed a report of the status of crocodiles by Dr H. R. Bustard in 1969. Queensland would seem to have both money and time to spare on their research—Dr Bustard's very full and comprehensive survey of the W.A. situation took less than one month!

DEPARTMENT TAKES OVER AT PEMBERTON

The Department of Fisheries and Fauna took over control of the Pemberton Trout Hatchery on January 1 this year, and wishes to place on record its deep appreciation of the voluntary efforts of the retiring members of the Trout Hatchery Board, Mr Ralph Kelly, Mr Roy Kelly, Mr Hubert Jay and Mr Gaston Todd. In assuming control, the Department is fully aware of the debt of gratitude owed to the voluntary efforts of all concerned with the development of the Hatchery over the past forty-odd years.

The original introduction of trout into Western Australian waters was the result of tremendous enthusiasm and painstaking work by one man. In 1930, Mr C. A. Glew, a Pemberton schoolmaster, established a small plant in his back yard and arranged for a consignment of ova from Victoria. These ova arrived in poor condition having taken 13 days to reach Pemberton. But the following year 20,000 ova were air-freighted and arrived with minimal mortality taking only 80 hours for the journey. Nearly 15,000 trout fry were subsequently liberated over an area of 180 square miles. Over the next few years many specimens of fish were brought in from local streams. They included perch, mullet and native species, but nothing that looked like a trout turned up until 1936, when a large fish was reported in a pool in East Brook. This proved to be an 11¼ lb. brown trout.

In 1935 the Fish and Game Society was formed in Perth; £500 was raised by public subscription and a grant of £500 was received from the Government. With this money an experimental hatchery and ponds were built at Pemberton. Financial and administrative difficulties almost caused the failure of the scheme, but in 1938 Mr Ralph Kelly formed the Pemberton Society, and with unlimited enthusiasm and hours of arduous voluntary labour, kept the hatchery going through the war years. Financial support increased and in 1945 the Government approved and financed the appointment of a full-time attendant, Mr J. Simpson, as Curator and Fisheries Inspector.

With Government support assured the Hatchery flourished, but its whole history from conception to the present date has been a monument to voluntary effort and community spirit. The Hatchery and the sport fishing it creates are enormous tourist attractions, bringing well-earned returns to the people of Pemberton.

The Department considers the future function of the Hatchery to be threefold:

(1) To provide fish for display in relation to tourist activities.
(2) To provide fish for sale and for distribution in suitable streams throughout the state.
(3) To provide facilities for research into freshwater species (including marron).

Dr N. Morrissy of the Waterman Marine Research Laboratory is currently carrying out research on trout and marron, and will act as technical advisor to the Hatchery.

The new Manager of the Hatchery is Mr G. Cassells, who was previously Assistant Manager under the Hatchery Board.

CRESTED PIGEONS EXTENDING THEIR RANGE

Fauna Warden A. R. Marshall reports sighting a pair of Crested Pigeons *(Ocyphaps lophotes)* at the Lake Jandakot Reserve.

These birds are found over most of Australia, but in W.A. were once rarely seen further south than the Geraldton and Mullewa districts. However, they now appear to be extending their range; in 1946-7 they made temporary appearances at Kellerberrin and later were recorded as far south as Coorow, Dalwallinu, New Norcia, Pithara and Shackleton. They were recorded in Perth by 1956 and reports have been received of occasional sightings in the Swan-Guildford Shire. However, as far as it is possible to ascertain, Mr Marshall's observation at Jandakot is the most southerly confirmed sighting made to date on the coastal plain.

TROUT FRY LIBERATED

The Pemberton Fish Hatchery released the following quantities of rainbow trout fry during November and December, 1971.

20,000	Waroona Dam.
20,000	Glen Mervyn Dam.
20,000	Murray River tributaries.
20,000	Lefroy River and tributaries.
30,000	Donnelly River and tributaries.
6,000	Warren River tributary.
4,000	W.A. Trout and Freshwater Association Experiment.
40,000	Blackwood River tributaries.
20,000	Harvey Dam.
10,000	Farm Dams near Pemberton (experimental).
190,000	

Plus 120 large brood fish surplus to Lefroy Brook.

DECLARATION AND AMENDMENT OF RESERVES

NEW RESERVES

Name	Res. No.	Locality	Plan	Area	Previous Use	Purpose	Vesting	Gazettal
Koodjee	20738	15 miles south of Moora	58/80 C.D.84	About 314 acres	Conservation of Flora	Cons. of Flora and Fauna	W.A.W.A.	12–11–71
	31030	6 to 12 miles south of Eneabba	91/80 B.C.12	12,221a, 1r, 33p	....	Cons. of Flora and Fauna	....	15–10–71
Kundip	31128	15m SE of Ravensthorpe	421/80 A3	3164a, 0r, 34p	....	Cons. of Flora and Fauna	....	24–12–71

VESTING OF RESERVES

Name	Res. No.	Locality	Plan	Area	Purpose	Previous Vesting	New Vesting	Gazettal
	29231	18m WNW of Mullewa	161/80A.1 156/80A.1	3624a, 2r, 6p	Cons. of Flora and Fauna	....	W.A.W.A.	12–11–71
Capamaura	24618	4 to 10m west of Coorow	90/80B. C.1 95/ 80B.C.4	8860a, 1r, 37p	Cons. of Flora and Fauna	....	W.A.W.A.	12–11–71

CHANGE OF PURPOSE

Name	Res. No.	Locality	Plan	Area	Previous Purpose	New Purpose	Vesting	Gazettal
	19327	13m SSE of Quairading	343/80F. 1.2	15a	Water Supply	Water and Cons. of Flora and Fauna	Minister for W.S.S. & D.	24–9–71
	11372	2½m south of Quairading Townsite	3/80E.4	72a	Water	Water and Cons. of Flora and Fauna	....	12–11–71
Jennaberring	18155	7 miles NNE of Quairading	3/80	17a, 3r, 39p.	Hall Site (Agricultural) and Recreation	Cons. of Flora and Fauna	....	30–7–71

GURKHAS AGAIN!

In June, 1971, a party of Gurkha soldiers assisted the Department in a goat shooting exercise on Bernier Island. The full story of this expedition was told in S.W.A.N.S. Vol. 2 No. 3, but the Gurkha's Commanding Officer Lt Col J. L. Chapple, M.B.E. also wrote an article about the trip for **Oryx** (January, 1972). Lt Col Chapple's summary of the exercise and his ideas for similar future co-operation between the Services and conservationists are definitely food for thought:

"All in all it was an interesting expedition which provided plenty of scope for exercising military skills as well as helping a conservation scheme of the Western Australian Government. Although no one would claim that it had any outstanding biological or ecological result, it was a contribution to the controlled conservation of rare species, achieved at minimum cost. The soldiers were all legitimately on duty, and the Department had only to provide the means of transport to and from the island, and arrange for aerial surveys. Local press publicity was good, and the soldiers certainly enjoyed themselves—not least because goat meat is the meat most favoured by Gurkhas.

On reflection, I wonder whether there are not more opportunities for joint ventures between the Services and conservationist organisations? It is not perhaps well known that there are at least forty training exercises every year in which men and equipment are flown to various parts of the world. There are also Service funds available under the general heading of Adventure Training for helping to mount or finance smaller expeditions 'of an arduous nature'. There are many projects for which the Services might be able to offer help, and there would certainly be no lack of enthusiasm on the part of individuals to take part once they knew how worthwhile it would be."

There are many conservation and ecological societies in Australia; one wonders if they are aware of the assistance that Service units are able and willing to give to worthwhile projects where finance and man-power are major obstacles. And surely there is no more worthwhile function of the Services in peacetime than to combine their training with preservation and conservation—and save while learning to destroy.

Looking west across the sandy bed of the Ord from "Dortch's Diggings" **before** Cyclone Sally. Carr Boyd Ranges in background.

OPERATION ORD NOAH

At the time of going to press Operation Ord Noah had reached a temporary standstill. This lull in the rescue activities was caused by the unseasonable dry weather experienced in the Kimberleys in the past few months. Although the major part of the rescue work is yet to be done a tremendous amount of groundwork, planning and surveying has been carried out during Phase 1.

Phase 1 began with the arrival of Mr Henry Hall at the dam site on December 17, 1971. At the dam site, he was joined by Fauna Wardens Bob Dear (Onslow), and Geoff Hanley (Wyndham), and on the following day by Departmental Fleet Maintenance Officer, Mr. Bert Lee. Cyclone "Sally" had recently passed over the area and reports had been received that the Ord catchment area was flooding rapidly. However, these reports proved to be somewhat exaggerated, for although there was a vast expanse of water it was obvious that the water level was not rising very rapidly. Mr Hall reported: "The water has reached a level at which Mr Beeck and I had agreed we would begin rescue operations **if the water was still rising".**

As will be apparent from the following summary of the co-ordinators' field diaries, part of the first phase involved the removal of cattle from islands in the flood area. Many of the larger islands will become permanent refuges for wildlife. If the cattle had been allowed to remain they would have destroyed the future habitat of these animals. Of no less importance were the dangers they presented to would-be rescuers; some of the bulls were extremely fierce and had they not been removed they would have made subsequent rescues extremely hazardous. During the month they were present for Phase 1 the team cleared all the smaller islands of mammals and reptiles. But until more rain falls and the rising water breaks the larger islands into smaller ones, no further rescue work can be undertaken. The team plan to return as soon as the water level has risen 5 to 10 feet **and is still continuing to rise.** Despite the first-rate camping facilities, and the unstinting co-operation of the Public Works Department, the first phase was certainly no picnic. The following summaries of Mr Hall's and Mr Beeck's daily field diaries show that a tremendous amount of valuable work was done in extremely arduous conditions and that, despite the many dangers and discomforts, the team remained in excellent spirits throughout.

December 18 (Hall)

Lee and I travelled upstream to locate islands and try to drive cattle. Located 4 small islands with feral cats and wallabies.

Destroyed cats, but will have to trap wallabies. Located 60 to 70 cattle belly-deep on a land rise in the water. Though hampered by the tops of trees and bushes, we succeeded in starting to swim cattle to mainland about ¾ of a mile away. Did well until leaders shied away from object in water and mob started milling. It was necessary to shoot the three leaders to start the herd moving again. Doing fine until calf left behind bellowed and the whole herd turned and swam back to the belly-deep patch and would not budge again.

Proceeded upstream, had good look around. pegged water levels and returned to base. Debris is thick in water—have damaged one prop.

December 19 (Hall)

Lee and I chartered 'plane and flew upstream about 30 miles past the Bow-Ord junction. The trip was very worthwhile; we got a very good picture of the flood boundaries and marked in unknown (by boat) islands for future examination. Upstream the river was not affected by the flooding and was running about half the capacity of its high flood mark.

We have about 18 small islands on which we have to destroy feral cats, move cattle and trap marsupials. I do not think we need the whole team yet but would like my son Ian to come up about Christmas Eve to act as boatman which is a pretty onerous job among the trees. Another 20 feet of water will make for much better going.

In evening we set traps on some nearby islands.

December 20 (Hall)

Did big drive on cattle that are standing belly-deep in water, but without much success. The bulls charge on the slightest provocation and can obtain good speed in shallow water. Had to shoot down several charging beasts when boat stuck in mud or motor stalled—hence request for .303's and Ian Hall to act as rifleman or boatman. This will give double the fire power from each boat, leaving a man at the tiller. This sounds a bit dramatic but there are no trees to climb and the water in the area is too shallow to hide under so it is a dead bull or I don't know what. Decided to try and clear a few cattle from another big island.

The same scene as above **after** Cyclone Sally. Approximately 60ft of water above river bed.

Project co-ordinators Neville Beeck (*left*) and Henry Hall. Both are ardent conservationists and farmers from Katanning and Dangin respectively. They have been members of the Western Australian Wildlife Authority since its inception

Had a very nasty moment when a "dropped" bull got up and pursued Hanley who fell heavily on stones. Got a solid stream of .44's into bull who decided to die. Hanley had got to his feet and had made the boat very smartly indeed, leaving me with sweating hands on the rifle and a very dry mouth—must be getting old!

December 21 (Hall)

With the assistance of Graham Bell, Manager of Argyle Station, we did a successful cattle drive. The chopper drove the cattle headlong into the water and before they could turn we slid the boats in between them and the land and forced them into deep water. Once they were swimming we had them and then ensued an hour or two swim to land. Rescued 147 today.

December 22 (Hall)

Tried all morning to get 70 cattle from one island and 47 from another but cattle would not budge, even rearing on hind legs to try and horn chopper. I would not let any of our crew set foot on land. Bell and his men were "treed" several times with maddened bulls—had to shoot bulls from underneath them. Had council-of-war with Bell and we decided to shoot all the bulls on the two islands. We did this and hoped cows and bullocks would swim, but no go, in fact the bloody cows are getting more sneaky than the bulls! We decided to let them do a starve for a day or two as the feed is pretty scarce on this island.

Tell anyone coming here that on no account set foot on any island without contacting this party. Those islands may look clear but sulky cattle lie up in crevasses and come out at a dead run.

Two lads in a camera crew (Follow the Sun) have dropped in, want to do a bit of footage with us.

December 23 (Hall)

Just about finished island survey, though the next two runs will take longer as we are not out on Argyle plains. Ended up at Argyle Homestead and had lunch on the shed roof—107°F in the shade and like a sauna bath. Think we are in for another hazard—two huge logs in the water (shallow) suddenly came to life and sounded; Hanley thought they might have been salt water crocs. This was right up near Old Lissadell Station. Think I will do a sneak run along the bank up there using paddles instead of motor to see what's there. Had blood samples taken. Excuse writing, but I have crushed my thumb. Merry Christmas.

December 24 (Hall)

Attempted survey of Argyle Plains by boat but had to abort the mission owing to shallow water on the perimeters. However, found bunch of small low islands about 2 miles east of the Behn River delta. These are knee high in buffalo grass and look like harbouring a lot of snakes. Saw black headed python, dingo and a couple of Euros.

Bert Lee got caught in a stinking windstorm—crawled out of it O.K. but had about 50 gallons of water in the boat.

I was working several hundred yards away from him and saw this black storm coming up the gorge. Shouted to Bert to run for another sheltered gorge, but he is a very precise boatman who checks everything before getting under way and he got caught in the full force of the squall. The

wind lifted the top of the water into great spumes 20 foot above the surface and Bert had a nice old job getting in. If he'd lost his head and "gunned" the motor he would have kited the boat for certain, but he kept his "cool" and got in to where I was circling waiting for him. We then made it to the sheltered gorge, but often we were spun round and round out of control. It is the wind funnelling down the gorges that causes this vicious, twisting turbulence.

December 25 (Hall)

The situation on the whole set up of the rescue operation is this—

We have 92 islands, ranging from a square chain to 6,000 acres and from 3 ft above water level to about 300 ft or more. The islands, except three big ones, have been cleared of cattle, but sometimes a bull will come from a big island at night and swim to a little one. Wallabies have swum to the big islands and are staying there, but I don't know how they are doing with the dingoes.

Water level is falling, owing to evaporation and absorption. The fall is about 6 inches per 24 hours.

On the next rain, and when the water levels rise by 10 ft, a few deserted islands will go under, but the big ones will break up literally into hundreds of smaller ones. This will continue for the next ten feet, then I think the position will reverse and islands will become scarcer as the water rises.

Argyle Station have promised to have a go at the last two mobs of cattle with us between Christmas and New Year, but these cattle are getting a bit sophisticated and will take some shifting.

December 26 (Hall)

Bert Lee and I took some P.W.D. boys and engineers from the dam up the river to drowned Argyle; they all seemed very impressed at the sight. Had a lively few minutes when a swimming King Brown snake came up the side of the boat and into the stern. Had everyone overboard in a split second, then had a lively few minutes skirmishing round the boat with our boy—snake versus a bit of rubber hose. Found it was no use hitting at its head, they dodge too fast; best to go for a spine break about two feet from the head. Quite a good specimen—measured 6 ft 8 in.

We had a bit of trouble getting one bloke into the boat again, so I put the dead, but still wriggling snake into the water with him and he was into the boat without touching the sides!

These boats are excellent for the job, stable, fast, easily manoeuvered and really tough. To date only one damaged prop, though have nicked five others, but we file the nicks out and that leaves them perfectly useable.

December 27 (Hall)

Picked up Neville Beeck and Ian Hall from Kununurra, and took them on orientation run up to Behn River and across to Argyle. Saw only one small copper headed snake swimming, and one Muscovy Duck at Argyle.

(Beeck)

Departed Perth Airport 6.00 a.m. en route to Operation Ord Noah to join Henry Hall and party. Ian Hall also flying to join the party.

Very clear conditions as we approached Kununurra where we had our first view of the water impounded in the main dam. This first sight was very impressive and thrilling. From 20,000 feet it was possible to see the whole area flooded to date—this looked quite extensive.

Henry Hall was at Kununurra Airport to meet us—looking very fit and his usual self. Had quick lunch in Kununurra during which Henry brought us up-to-date on all the happenings thus far. It was evident that Henry, Bert Lee, Bob Dear and Geoff Hanley had been very busy, and had accomplished a great deal.

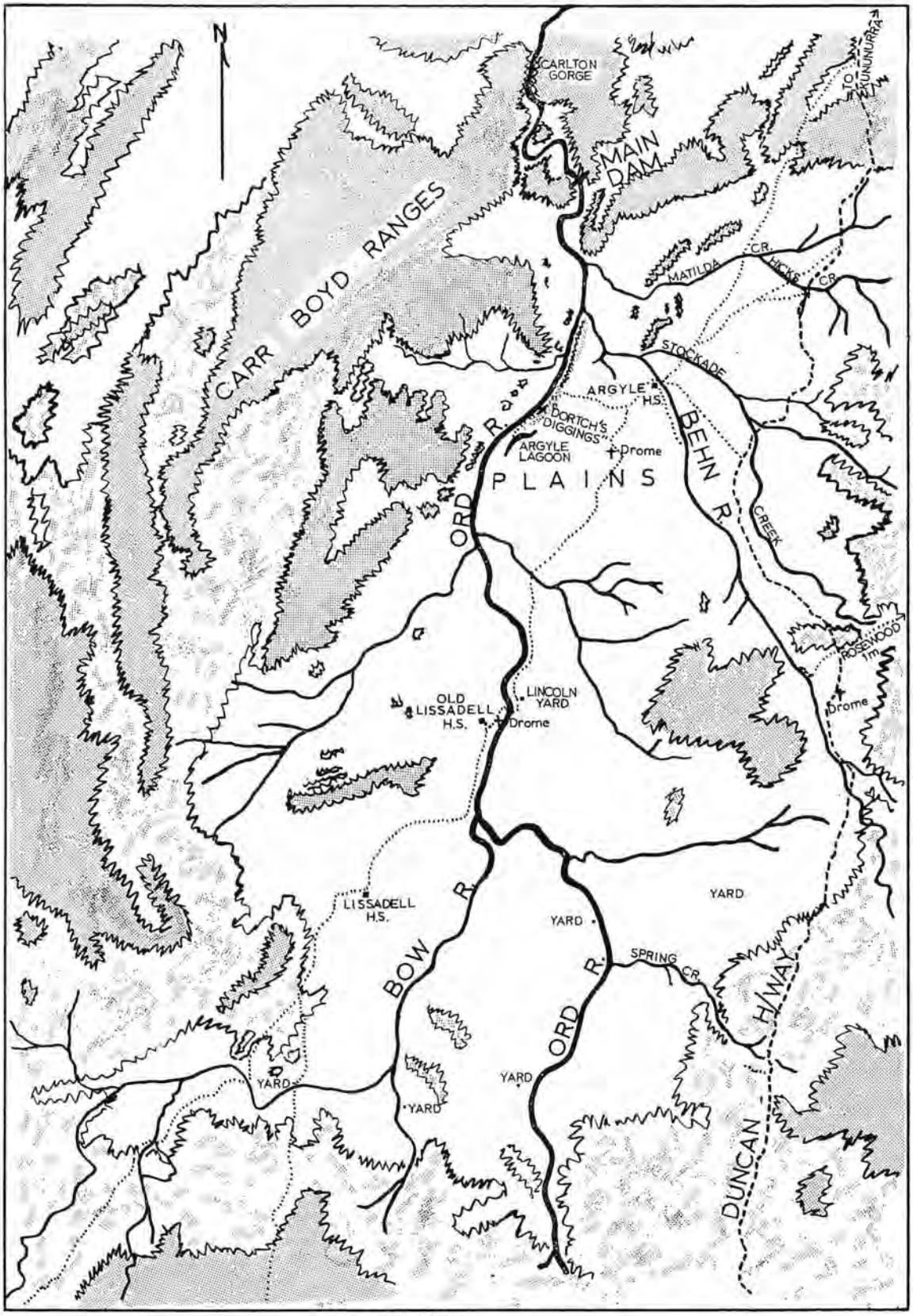
However, I don't have to report on this as Henry has already done so. Suffice it to say, I'd give them full marks for the excellent job done and the good spade work which has enabled us to settle in, and I'm sure be able to be a very happy and, I trust, efficient team.

Arrived Headquarters about 2 p.m., moved into quarters (very good too) and immediately prepared for a briefing run up as far as Argyle Downs Homestead by boat.

First impression of the dam, once having got right up to it, was that there wasn't much water but as we travelled upstream past the confluence of Hicks Creek and then into the Behn River, it became obvious that there is a fairly large area under water but mainly on the flood plain and bases of the rivers mentioned. Cattle were seen on two islands. One herd of about 40 beasts, obviously very shy and spooky. Wouldn't care to be on foot here.

Reptile expert Harry Butler with a deadly King Brown snake

LAKE ARGYLE AREA



SCALE:

5 0 5 10 15 MILES

Travelled up Behn River to Argyle Downs Homestead site. Strange feeling to see all the sheds engulfed up to the guttering and various other objects sticking out of the water. Estimated depth here about 11 feet. Took the boat right over where the house used to be. Old Patsy Durack would turn in his grave if he could see his station now! Apart from birds and cattle the only life noted was one Muscovy Duck and one copper headed snake; he would have liked to come aboard—would have assisted him but had nowhere to keep him.

This orientation trip gave Ian Hill and I a good grip of the situation. Henry at the tiller very ably briefed us all the way. It is very obvious that this first stage of the fill will not yield much fauna. Only as the level rises pushing animals up onto the higher levels and small areas will we be able to work successfully and produce results.

As already stated in Henry's reports cattle are, and will be for some time, our No. 1 problem. These big brutes are tremendously quick and will have a bloke up on their horns in a flash. So no chances can be taken.

Returned to base with a fairly clear picture of the Behn River area. Must admit it is very easy to get lost in blind gullies, and cul-de-sacs, etc.

December 28 (Hall and Beeck)

Went for a run upstream to see if any saltwater croc tracks; saw plenty of Johnston tracks but nothing as big as a saltwater. Also we were to ascertain how the water position was on the west bank of the river 10-20 miles upstream, what islands had formed, cattle numbers and animals which could be candidates for rescue.

As we travelled parallel to the cliff face fronting onto the river we saw one antilopine kangaroo and one rock wallaby.

Also climbed a hill where we disturbed a pair of Agile Wallabies. This section of rocky foreshore which will later be cut into a number of islands is now surrounded by water isolating the animal population to be rescued later.

Travelling up river from here we noted that the water was much clearer than at the dam site itself. It was also very noticeable that the river had been at a very high level in the last few weeks and had now dropped considerably. Proceeded on past Cooee Creek—eventually water flow was noticeable.

Tried to reach river crossing at Old Lissadell but shallow banks of sand and rock plus 3-4 knot flow—decided to return. Estimated width of stream 100 yards, depth 5 feet yet dam level dropping.

Returned to area near Dortch's excavations—recorded Rock Wallaby, Nail-tail, Agile, Euro and probably Antilopine.

A very productive day, giving us a much clearer picture of the place. Plotting our course on the map we estimate that at point of turnback we were 40 miles from the dam site.

According to the engineer this area will be flooded to a considerable depth and will extend some miles up river from Old Lissadell.

December 29 (Hall and Beeck)

Did a big probe into the Hicks Creek area. In fact got right through to the Argyle Plains and could hear traffic on Duncan Highway. There are large areas of open water interspersed with numerous islands. Located Nail-tails, Agiles and Antilopines.

There are a number of large islands, impossible to survey or work yet, but when water level rises these will be divided into many smaller ones—which should carry a fair population of animals.

Another backwater about 3 miles from base has an almost bare island which has three Nail-tailed Wallabies. We intend to attempt rescue tomorrow with some nets we have acquired. Also TV camera crew to assist and shoot film.

Have done just about all the surveys possible now.

Badly in need of water level rise. There is no sign of rain yet. If it hadn't been for "Cylcone Sally" this would be a late wet season. We agree that when it does rain sufficiently for a good water rise the aeroplane will be essential, but as of now we can manage nicely, even though it necessitates considerable boating mileage.

December 30 (Beeck)

Made plans to attempt rescue of Nail-tails on bare island. This was to be the first attempt to net animals. Unfortunately it didn't work out. Firstly only one wallaby was still on the island, the other two must have swum for it.

After setting up the net in what we thought would be the most suitable spot we drove the island, an area of about 1 acre, in line-abreast eventually flushing out the wallaby, which immediately took evasive action and headed in every direction but the net. At last, after much sweat,

A rather bedraggled Euro receives a helping hand from team member Bert Lee

shouts and stubbed toes the wallaby headed out to a small peninsula and immediately took to the water, striking out strongly for some hoped-for distant shore. At this stage Ian Hall cut off its progress by boat but was unable to do anything more than head it parallel to the shore. Henry arrived at that precise moment, plunged in and did a fine water rescue. All things considered, this rescue was a copy-book effort, i.e. the actual rescue, not the initial planning and net laying, this didn't work out. However, many good lessons were learnt and we feel confident that we can apply these at a later date with good success.

The animal taken is a female Nail-tailed Wallaby *(Onychogalea unguifera)*. She was in fairly poor condition, owing to the island being completely barren. We brought her back to our holding rooms which had been prepared previously for the reception of animals. Placed her in the room with water and grass and other food. After several rushes and leaps she quickly settled down and by evening had begun to eat.

A rescued Rock Wallaby takes a close look at its offspring

As sufficient time remained this afternoon we decided to try to net a Euro and Agiles on an island up Hicks Creek. Conditions were different here, being rugged, rocky ground covered with spinifex and larger trees. Here our efforts didn't yield anything except blood, sweat and in one or two instances, I'm pretty sure, tears, though well hidden. Even though the island was quite narrow, the spinifex coverage was so thick that the animals literally went to ground and couldn't be flushed after our first sightings. We intend to try this area again with different tactics. Swimming distance for these animals is too great for them to get out safely on their own power, so must have another try.

Boats are working well. These Hercules are a very wise choice, good to handle, roomy and feel very safe.

Ian Hall very good at his work—good boat handler—an asset to the team. Bert Lee a tremendous help, always there and has the happy knack of being able to anticipate events.

Going back to the Nail-tailed Wallaby, she had a joey about 3-in. long which she "threw" as soon as she was back on land. During the swim she had taken a fair amount of water into her pouch, and this came out in a stream when we upended her. The thought occurs here that any does forced to swim some distance have a good chance of drowning any joey they may be carrying.

December 31 (Hall and Beeck)

The day starts here with breakfast at 5 a.m., which is great, enabling us to get an early start, especially while the air is reasonably cool. The days may sound long, but to us there is never a dull moment even in routine patrols.

Our captive Nail-tailed Wallaby has settled in well and is consuming large quantities of grass. Seems to have picked up in condition already.

This is a delightful place. The scenery as we travel into gorges and circle islands is superb. The contrast of water and red cliffs or green grass slopes dotted with cattle reminds one of Scotland or perhaps Scandinavia, except for the heat and humidity.

We are the bloody unsung heroes up in this cattle country for the way we got so many out alive, with minimal shooting, and it is going to stay that way.

Have got bait mixed for big trapping programme —we think this caper will be very successful as we have pinpointed colonies of pairs of five different species of macropods. Weather cooking up again —would love to see big rain.

March flies prevalent. Bert Lee has grown a new skin on his face; he lost the other to sunburn!

January 1, 1972 (Beeck)

Happy New Year everybody. A nice mild day here. Henry and Ian Hall have taken the boats upriver for a short run. Bert and I have a few routine duties at base.

Present estimated holding of water 1,000,000 acre feet. That's a lot of water! Wait till this hole is full (4,800,000 acre feet).

During late afternoon trapping run we rescued a Blue-tongued Lizard swimming strongly towards shore, at least 150 yards out. Must have come from a tree someplace as the nearest land, sighting along from head to tail, was at least a mile away.

Full marks to P.W.D. and Dravo for the treatment we receive, good atmosphere. Have a bit of a cold or something. Could be airconditioning or chlorinated water—bloody vile! All the team is getting fatter no matter how long a day we put in.

January 2 (Beeck)

Breakfast not till 8 a.m. today, so checked the traps we set. No luck even though there are signs of macropods. However we do have much more promising areas to trap over—this first effort was mainly to experiment.

Before the flood—14 miles upstream. The water will rise up the cliff face on the right leaving the top as a permanent island.

After lunch, Henry, Ian Hall, Bert and I took the boats into a big backwater west of the river about 2 miles upstream from the dam. Henry had seen wallabies on small islands here and eventually scared them out onto higher ground. This was before Ian and I arrived. We inspected a number of other islands not checked before. No wallabies on smaller ones, larger islands not possible to check properly because of area and in many cases, ruggedness.

Grasshoppers large and small very plentiful. Even get into the bait in our traps. Frogs too are very plentiful in places. Small fish, appear to be rifle fish, are here in their millions. The hotter the water the better they seem to like it—as we see the biggest concentrations in backwaters that are sun traps, the water being unpleasantly hot. Odd snakes seen from time to time, also fresh water tortoises occasionally.

January 3 (Beeck)

Did trap round at first light—but no success. One Blue-tongued Lizard which we promptly released.

No small mammals such as native rats, native cats, bandicoots or possums seen at all. No sign on trees even of possums.

Henry and I went to Kununurra to meet plane bringing Harry Butler and his assistant Barry Vaughn.

Afternoon plan was to try for wallabies on an island in Hick's Creek where we had previously attempted a capture by netting. Full party strength mobilised for this. No result. Animals had left island. These beasts can swim quite well and don't hesitate to leave an island if the next land is only a short distance. After this effort it was decided to investigate Hick's Creek. Some of us were of the opinion that Hick's and Stockade Creeks could have backed-up sufficiently to make an island of the Mt. Misery area. An extensive search proved us wrong, but it is considered that another 5-10 feet rise would enable us to force a passage around Misery giving us a vast new area to investigate.

Each day the conviction grows that there will be a great many permanent islands here—10 to 20 maybe. This is a paradise and will be just fantastic when the levels reach maximum.

January 4 (Hall and Beeck)

Picked up Museum boys at Kununurra. Took them for orientation run. They are drooling at the stuff they saw and champing at the bit to get to work.

Did a patrol 12 miles up to Dortch's diggings to assess animals and give Harry Butler an idea of the place. A lot of macropods seen, 9-10 Brush-tailed Rock Wallabies, 12-13 euros and Agiles. We decided a trapping programme should get started as soon as possible up in this area inspected. Also noted 2 Euros and 1 Agile on a small island and decided to rescue these in the afternoon, under the coverage of the cameras of the "Follow the Sun" team.

Net was run and drive made. Agile tumbled through net, larger Euro took to the water like a fish and struck out dolefully for distant shore. Ian Hall and Neville Beeck set off by boat and hauled her in, very wet and very frisky. The Agile could not be seen—probably swam off—they are strong swimmers. However the young Euro was run into the net where a dashing capture was made by Mal Douglas (cameraman) and Harry Butler.

Too late to set traps—a good day we feel.

Found a new large area to do a survey in. Had 279 points of rain near Lissadell and there has been a 5-6 in. rise in the last few days. There is about another 7,000 acres flooded as a result on the Argyle Plain. We intend to do a run into the Stockade Creek area too as this is an untouched area.

Henry Hall with a rescued Euro

Cameraman David Oldmeadow keeping a Bungarra at safe range

Hope the ABC Channel 2 boys arriving tomorrow will be as good as the two units we've had. These blokes look like starved 'roo dogs and can run just about as fast—always up with the action!

January 5 (Hall and Beeck)

This is a day to remember. Some cattle were stranded on an island 4 miles up. There had been several attempts to get these off before, some of the chaps had been "treed" and Hanley had been hurt.

Argyle Station hands had shot all the bulls but evidently left one with a superficial shoulder wound—hardly white hunter tactics. We were running the cows, bullocks and calves quite successfully when this big bloke broke cover from the back of us and went through us like a packet of salts. Everyone up a tree in a trice except Neville Beeck who disappeared head first into the Ord. Trees everywhere were literally crawling with blokes, just like monkeys. Unfortunately David Oldmeadow, one of the "Follow the Sun" cameramen slipped while climbing a tree with his camera in one hand. The bull headed straight for him catching him in the groin with a horn and tossing him downhill onto sharp rocks. Dave received some nasty cuts on his back from the stones and cut head and legs. Blood all over him; his worst injury was a nasty horn puncture in the groin, but his main concern was that his mate didn't get the "toss" on film! We whipped him into the Dam for first aid, then into Kununurra for a really thorough job. He has been discharged and is walking around again. Tough as old boots!

January 6 (Beeck)

Cattle drive up the Behn River, but not a success. The beasts on the rocky islands refuse to swim no matter what we do. We'll leave them until the water rises some more, then perhaps they'll move.

We decided to drive a small group of cattle off a very small flat island a short distance away. This drive, with the help of the "chopper" was a success and the beasts took to the water quite easily. While driving the cattle off we flushed a small Nail-tailed Wallaby which we nearly caught by hand.

ABC Today Tonight team arrived so we tried the capture of a Nail-tail under the camera. Set up the net across a small peninsula in the hope of running the animal into it. Didn't work out. The Museum team came along to help also so we had sufficient manpower to run the beast down. After some pressure he (it proved to be a young male) took to the water. Ian Hall went in and affected a good rescue. Harry Butler and others collected five bungarras.

Set traps for Brachyotis. Home for tea. A big, but successful day. The team are always ready to do the job no matter what. Their spirit is tremendous.

January 7 (Hall and Beeck)

Morning. Cameras whirred while we did a rescue on a Euro. She headed straight for the water and swam strongly, heading for distant land. This was the opportunity for a boat rescue—beautifully executed—under the cameras. A Euro swimming for her life, the W.A.W.A. boat drawing alongside, arms reaching out to rescue the animal—everything just right. Barry Vaughn reaches out just that bit too far, looses his grip and does the neatest header possible—all captured on film. It was a riot!

We have a few sick, or rather I should say emaciated wallabies that have suffered stress on a very bare island—all are recovering. I have sent on tonight's plane to be picked up at Perth Airport, two Nail-tailed Wallabies, both in need of further nursing, one Euro joey too young to be released here alone and one female Brachyotis in good health but has to be removed from restricted territory.

All things considered this has been a very successful week. Mammals have been rescued and others pushed off islands to other areas. Lizards and bungarras taken and released. More islands cleared of cattle and donkeys. A considerable amount of exploratory work done for future rescue work.

Worried tonight. Museum boys are upstream somewhere. At 9 p.m. had not returned and there have been several squalls this afternoon.

January 8 (Hall and Beeck)

At first light (3.30 a.m.) we took both boats to search for Museum team. Covered Dravo airstrip area where we knew they had been working. No sign.

About to return home and make further plans when we saw their boat coming. Cheers!

They had had motor trouble, couldn't do anything in the dark, so waited for moon rise and started rowing. Got caught in a thunder shower and squall so very cold for a while. They had eaten a bungarra for tea.

Most of morning spent checking over our "Mother Ship" the "Lillian Hamilton", and spent the afternoon helping Harry Butler catch snakes. Caught 8 of the blighters, plus a lot of lizards.

January 9 (Beeck)

Henry and I took a boat each to Argyle with interested visitors. We feel in most cases the people here should be looked after in this way as most are helpful and interested and while we are not "snowed under" we can do a trip for them.

After lunch Harry Butler went snake catching up to Argyle, while Bert Lee and I took another boat up to the confluence of the Behn and Ord and worked over two big backwaters that had not been looked at yet. We found at least forty (40) islands, some only as big as a soup plate and one of well over 1,000 acres which is very high and will be a permanent island.

Neville Beeck scooping a lizard from the water

January 10 (Hall and Beeck)

Finally cleared up cattle on the nearby big island. Did a very good, clean, quick job. We rescued some and it was pleasing to get them off

Henry Hall gives Bert Lee a helping hand with a Euro

alive. Being cattle men we don't like having to shoot beasts, but there is no alternative in situations like this.

This means the larger portion of area is free from stranded cattle, but we still have 30 on a 1,200 acre island near the mouth of the Behn. These can wait till we get a water rise to split them onto smaller islands.

Set more traps for Brachyotis. This species is very plentiful here. Would say more common than any other macropod in this area. One beautiful male "rocky" just about bowled me over today when I looked into a small cave. They go like a flash of light.

Still no rain and no sign of it. We have discussed the situation at great length and are wondering if it might be wise to pull most of the team out until we get a good rise. A skeleton team of say three could remain to watch the gear and do patrols. As soon as there is a rise the rest could return. Will sleep on this one.

No growls or grumbles. Team all happy. Bert Lee will be returning south soon, also Barry Vaughn. Sorry to lose Bert. Good chap and stands out as a quiet but extremely efficient and almost embarrassingly willing worker. Sorry to loose Barry too—very willing.

January 11 (Beeck)

V.I.P. morning. Henry took some American cotton magnates up Argyle way for a look around.

It was my privilege to take Bill Withers, M.L.C. and his family up to Argyle in the other boat. Like many others Mr Withers wondered about the usefulness of an operation such as ours. Once he had seen the area he appreciated the value of the work and commended us for the job being done.

Now the big question in the team's mind is—what of the future? The static position of the water level definitely is restricting our activities.

Then the other day the P.W.D. pulled the plug out of the dam and let a lot of water downstream to the diversion dam. This has caused an appreciable drop in the level. As we have said before, we have a lot of islands in the making, hundreds in fact, but impossible to work now. Six to ten feet of water would do the trick but when we look at the area to be flooded yet to that level, an awful lot of rain will have to fall. A three feet rise will **double** the existing area of the water.

We think that Bob Dear could be left in charge here to monitor water levels and rainfall. He is completely familiar with the area and what is required. Harry Butler can still work O.K. with the reptiles and any other animal that turns up. We are thinking of the economics of the operation and as it is going so successfully we don't want to see any curtailment of our efforts in the long term. Hence the thought that it might be more economical to send some of us home to await rain. It would be a month before there is sufficient water, or even longer, who knows?

Barry Vaughn hands a sack of bungarras to Bob Dear on the "Lillian Hamilton" while Ian Hall manoeuvres the rescue boat

January 12 (Beeck)

Trapping is continuing with varying results. Nothing this morning. We have absolutely skinned the smaller islands (estimated 127 small ones).

Henry is tying up loose ends prior to his departure south with Bert Lee.

We have now received a request from our Director to obtain if possible the plaque from Pumpkin's grave, 7 miles up the old Rosewood-Argyle road on the Behn River. This operation planned for Friday morning. Thunderstorms tonight. Some rain. Very vivid lightning.

January 13 (Beeck)

All traps brought in today. One Brachyotis caught, nice male.

We decided that since Henry was going down, it was a good opportunity to send down some more animals—2 Rock Wallabies and one Euro.

Took Henry into Kununurra together with Bert Lee and Barry Vaughn.

Henry has been handling the situation here with finesse. He's right on the ball and is a bundle of energy. The spade work he did here made the running of the Operation very smooth. It's a pleasure to work with him.

Had a good storm again last night, about 50 points of rain. Creeks came down strongly, especially "Match Box Creek". This creek cuts off the site from Kununurra every time it rains.

A lot of small animal forms turning up on some of the islands. The Museum people are getting a lot of material that in many instances could not be found for rescue.

January 14 (Beeck)

As requested we went in search of Pumpkin's grave. We knew that the site was some seven miles up the Behn River from Old Argyle. We went via the old road. There had been some fairly heavy rain in the Matilda and Hick's Creek area so that we had to be careful. Further on towards Rosewood and "New" Argyle the road was dry. At the new homestead Graham Bell gave us directions. We came back along the same road, turned in towards the Behn River and 2½ miles down this old track we came to the cattleyards where not far away was Pumpkin's grave. After photographing the headstone we removed the plaque. The inscription reads—"Here lies PUMPKIN, (Member of the Bootamurra tribe of Cooper's Creek) who from boyhood served Patrick Durack of Thylungra, Western Queensland, following his sons to the West in 1887 and rendering faithful friendship and devotion to the day of his death in 1908. Erected to his memory by M. P. Durack 1950".

Afternoon spent in reporting, office work etc.

January 15 (Beeck)

The Museum team going to investigate some areas new to them but known to Harry Butler and I. We decided to take a joint look and take one of the W.A.W.A. boats as there were six in the party.

Our first spot was in the vicinity of Dortch's diggings. Some good caves here, loaded with bats. Four species were taken amid a bit of excitement. Quite a spectacle to see a virtually naked body hanging out of a cave 100 ft up a cliff, clutching a couple of miserable little bats. All in the cause of science!

From there we came back downstream to a big backwater and finally to an interesting place called Banana Springs. These springs are still above water level, beautiful clear water bubbling out of a valley. The water then flows over a Cadjibut swampy flat spreading over a considerable area with thick swamp grass. Some interesting bird forms here.

Harry Butler and I walked up a gorge to try and get some idea if islands would be formed with a 20 foot or so rise. A big scrub bull loomed up and, looking mighty mean, advanced on us with malicious intentions! A well placed .44 slug at 80 yards brought the matter to a sudden conclusion. Don't like shooting these beasts but just have to to survive at times.

Harry and I turned back at this point and taking another valley back to the springs flushed a couple of cows and a calf right into the laps of the Museum boys causing one hell of a panic! When we arrived on the scene bodies slid out of trees all over the place.

Returned to camp. An interesting day. Broke new ground which will be helpful when the next phase commences.

January 16 (Beeck)

Decided we should investigate the upper reaches of Stockade Creek and the Behn River before returning south.

Didn't get far in the Stockade Creek area, but skirted the southern edge of Mt. Misery which now has water on three sides. A ten foot rise would probably make the mountain an island. Appears to be a fair population of macropods here. Some will be quite safe, but the large area of tangled country west of Mt. Misery will break up into countless islands later. From Stockade Creek and Mt. Misery we went up the Behn River past Argyle Downs' flooded homestead—we were able to penetrate up river for several miles following the tree line. The surrounding plains have water on them but very shallow. Eventually we travelled the channel itself with dry land each side for some distance.

Our aim in doing this patrol was to investigate the bird life, especially waterfowl and to get some idea what effect future flooding will have on the big plain itself; what islands are likely to form etc. At least a 10-15 ft rise is needed in this area to cause us to mount a rescue operation here. There appears to be quite a lot of animals on this plain too. Wild turkeys are everywhere, one flock of 11 took wing together—a grand sight!

About a mile from Old Argyle we came upon a breeding colony of waterfowl. Plumed Egrets, White Egrets, Pied Herons and Little Pied Cormorants were all breeding together. Estimated at least 500 breeding pairs. Some of the nests seem to be dangerously low to the water—so if we get a sudden rise some of these nests will be in peril.

The steady build up of water birds is noticeable now. Every shallow backwater has its population of waterfowl to some degree. What a place this will be when the water reaches its maximum level and birds and animal populations reach their ultimate numbers. Hope some bloody fool doesn't get bitten by a mosquito some time and decide that the whole area has to be sprayed with pollutants! This patrol has given us a virtual coverage of the whole area inundated to now.

Returning to Perth tomorrow.

End of Report of Operation Noah (Phase 1).

Roll on Phase 2!

STOP PRESS—Operation Ord Noah has now been postponed until the next wet season. Animals remain only on the larger islands, and will be able to survive until heavy rains cause these to be reduced in size.

SUGGESTED READING

BIRDS

"The Handbook of Australian Sea-birds"—D. L. Serventy, Vincent Serventy and John Warham. Sydney, A. H. & W. A. Reed Ltd., 1971.

This is the first book to deal comprehensively with all the sea-birds of Australia which, in total, amount to about one-sixth of the bird species of the continent.

The authors have summarised the present state of knowledge concerning these birds and deal in detail with their life histories and distributions. Every known nesting place is listed and the descriptions, which emphasise diagnostic features, together with the numerous photographs and sketches, enable each species to be identified in the field. The sections on sea-bird geography include an account of the past and present environments within which the Australian birds have evolved and are evolving. Many aspects of sea-bird biology are discussed such as their conservation requirements, their use as food, and current research programmes. The authors suggest how to go about a sea-bird study and in their accounts emphasise the gaps in our knowledge. An extensive bibliography, not restricted to Australian publications, enables the reader to locate the major research papers for each species and topic.

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(EDITOR.)

RAINBOW LORIKEETS IN METRO AREA

Rainbow Lorikeets *(Trichoglossus moluccanus)* have again been reported in the Metropolitan area.

This is unusual because the accepted range of the bird is eastern Australia from Cape York to Victoria, and eastern and southern South Australia to the Eyre Peninsula. (They are also found in Tasmania.) The bird is most easily distinguished by its brilliant colours: head, blue; underparts and tail, bright green; collar, pale green; breast, orange red; underwings, orange and yellow; bill, coral; and legs, greenish-grey.

Rainbow Lorikeets were first seen in Perth in 1968 by a C.S.I.R.O. officer, and Metropolitan Fauna Warden Mr A. R. Marshall also reported sightings at the same time. Mr Marshall made a further positive identification in 1970 and again in December 1971.

At first it was thought that these birds had escaped from or been released by aviculturists. However, some people consider that the Lorikeets have found their way over from South Australia.

Honorary Wardens can help to solve this puzzle by noting any sightings in their quarterly reports, and informing Dr G. Storr of the W.A. Museum, Beaufort Street, Perth, as soon as possible.

BANDED TERN RECAPTURED 16 YEARS LATER!

The Australian Bird-Banding Scheme report the recovery of a Crested Tern at City Beach in December 1971. At 16 years, 1 month and 16 days this is the second longest elapsed time between banding and recovery for a bird banded under the auspices of this Australian organisation.

The longest elapsed time between banding and recovery is for a Black-browed Albatross, which was banded as an adult on Macquarie Island on 13/10/54 and recaptured at the banding place, 16 years and 2 months later, on 13/12/70.

FAUNA WARDEN AT KALGOORLIE

The Department now has a fauna warden stationed at Kalgoorlie.

Alan McKenzie is 24 years old, married with no children, although his wife is expecting a new arrival later this year. He is accustomed to the bush and spent his boyhood on a pastoral station in Victoria. His main interest outside his work is bronco riding and he has competed in many rodeo events.

Warden McKenzie's major duties will encompass the Red and Grey Kangaroo Management Programmes and other duties connected with the conservation of native fauna. Particular emphasis will be given to the protection of the rare Naretha Parrot which occurs in the area of the transcontinental railway.

Initially, Warden McKenzie will operate from the Agriculture Department Building, Maritana House, Cnr. Cheetham and Boulder Road, and subsequently from an office of his own.

The Fauna District covered by Mr McKenzie is an area of nearly ¼ million square miles. The western boundary is the Vermin Proof Fence; the northern boundary is through Laverton and Leonora; the southern boundary from Eucla to Norseman and the Eastern boundary is the S.A. border.

NEW CLASS OF INSECTICIDE

A team at the C.S.I.R.O. Division of Organic Chemistry has synthesised a new class of insecticide which contains neither chlorine nor phosphorus.

Screening tests have shown that these chlorine-free and phosphorus-free insecticides are as effective as DDT and can control DDT-resistant strains of many insect pests. Their low toxicity to man and animals makes them attractive for many pest control situations, and samples have been submitted to the World Health Organisation for evaluation.

OPERATION NOAH—THE LAST WORD

The Hon. Minister for Fisheries and Fauna, Mr. Ron Davies, recently received the following personal letter from Mr. Hal Colebatch of "The West Australian".

Dear Mr. Davies,

I am writing to formally express my appreciation of the great kindness and co-operation that was shown me by members of the W.A. Wildlife Authority and the Fisheries and Fauna Department while I was covering Ord Noah for "The West Australian".

It was quite exceptional in my experience.

While, like most journalists, I rather pride myself on being unimpressionable, I was most deeply impressed by the constant dedication and good humour of these men, who took a lot of trouble to help me, often under rather trying conditions.

Yours sincerely,

Hal Colebatch

95896/3/72—1800

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FAUNA DISTRICTS

KEY TO DISTRICTS

1 ..... KIMBERLEY
2 ..... NORTH WEST
3 ..... EASTERN
4 ..... GASCOYNE-MURCHISON
5 ..... GERALDTON
6 ..... MELBOURNE
7 ..... NILGARN
8 ..... MURRAY
9 ..... AVON
10 ..... EUCLA
11 ..... SOUTH WEST
12 ..... GREAT SOUTHERN
13 ..... METROPOLITAN