DEPARTMENT
AUSTRALIA
MONTHLY SERVICE BULLETIN

Vol. X, No.5 June, 1961.

STAFF NOTES

Towards the end of May, the Director, Mr. A.J. Fraser, accompanied delegates to the Commonwealth-States Fisheries Conference on a pre-conference visit to Geraldton and the Abrolhos. He later took the chair at the conference, which was opened by the Minister for Fisheries, Mr. Hutchinson, on May 29. References to the conference appear elsewhere in this issue.

* * * *

On June 5, Mr. Fraser will lead the Fishermen's Advisory Committee on a tour of inspection of inlets along the south coast. This will allow members to gain first-hand knowledge of those areas which, it has been suggested, should be closed in rotation to net-fishing. The Committee will attend public meetings at Manjimup, Walpole and Denmark to discuss the proposal. They will later meet the Albany Road Board and the South Coast Licensed Fishermen's Association at Albany.

* * * *

Our congratulations and good wishes are extended to Cadet Inspector R.G. Emery and Technical Officer R.J. McKay, each of whom will be married this month. Mr. Emery will wed Miss Flora van Hunnik, of Doubleview, on June 3, and will have Mr. McKay as best man. On June 24, Mr. McKay will marry Miss Patricia Francis, of Rossmoyne. Mr. D. Wright, mate of r.v. "Peron," will be Mr. McKay's groomsman.

* * * *

The Pearling Inspector, Mr. R.J. Baird, will return to Broome by sea on June 6 after long service leave. Inspector E.I.

Forster, who has been relieving at Broome during Mr. Baird's absence, will sail for Fremantle on the same day. Mr. Forster will commence annual leave on July 3.

* * * * *

Other officers to proceed on annual leave shortly include Inspector F.J. Campbell and Assistant Inspector D.P. Gordon, on June 6, and Assistant Inspector G.J. Hanley on July 3. Assistant Inspector L.R. Frizzell commenced leave on May 28.

* * * * *

Assistant Inspector E.H. Barker will act as Whaling Inspector at the Nor'-West Whaling Company's station, at Carnarvon, this season. It is expected that the company will commence operations towards the end of the month and Mr. Barker will arrive there some days beforehand.

* * * * *

Cadet Inspector K. Enright will, at an early date, be transferred to Pemberton to assist at the trout hatcheries during the stripping season.

* * * * *

Fauna Warden N.E. McLaughlan flew to Cue on May 27 to witness and participate in some of the techniques used in the emu survey being conducted by C.S.I.R.O. personnel based at Mileura Station. The survey is being directed by Mr. S.J.J. Davies, of the Wildlife Survey Section. Mr. McLaughlan will return to Perth on June 4.

PERSONAL PARS

Our congratulations are extended to Mr. D.E. Kurth, of the Division of Fisheries and Oceanography, C.S.I.R.O., who has been awarded a Ph.D. by the University of Tasmania for a thesis entitled "An Investigation of the Greenbacked Flounder."

* * * * *

Dr. G.L. Kesteven and Dr. R.G. Chittleborough, of the Division of Fisheries and Oceanography, C.S.I.R.O., returned to Australia early in May after attending the International Whaling Commission's Scientific Workshop in Rome. This month, Dr. Kesteven

will fly to London to attend a meeting of the International Whaling Commission.

* * * *

Mr. S.J.J. Davies, of the Wildlife Survey Section, C.S.I.R.O., called on the Director during the month. Mr. Davies, who is directing the investigations into the habits and movements of emus, will leave Perth for Sydney in July. In August he will go to the United Kingdom to take his Ph.D. in animal ecology at Oxford University.

COMMONWEALTH-STATES FISHERIES CONFERENCE

Attended by delegates from all States, the Fisheries Division of the Department of Primary Industry and the Division of Fisheries and Oceanography, C.S.I.R.O., the annual conference of fisheries authorities was opened in Perth on May 29 by the Minister for Fisheries, Mr. Hutchinson.

After welcoming delegates and observers, Mr. Hutchinson commended to the conference the proposal to form an Australian Fisheries Council along similar lines to the Australian Agricultural Council. He said that he would like to see established a committee to direct fisheries research in the western section of Australian waters. He hoped that the committee would comprise representatives of the State and Commonwealth departments, the C.S.I.R.O., the University of W.A. and the Western Australian Museum.

Mr. Hutchinson outlined the impetus given to the fishing industry by his Government in recent years, pointing particularly to the provision of harbour and other facilities at Fremantle, Geraldton and Dongara. He emphasised that private enterprise would need to co-operate fully in the development of the fishing industry as a great deal of capital would be required.

Pre-conference Excursion.

To give delegates to the conference some personal knowledge and a better appreciation of the problems facing the crayfishing industry in Western Australia (which is by far the most important single fishery in the Commonwealth), they were taken to Geraldton in the week preceding the conference, and conveyed to Houtman Abrolhos on our vessels "Lancelin" and "Dampier". After spending

The effect of speed-boats on estuarine, bay and inland fisheries was discussed and a strong recommendation carried that all speed-boats be registered, that defined areas be set aside where speed-boat enthusiasts could operate, and in order that they might recognise fishing operations in progress, that all fishing-boats while actually fishing be required to hoist a signal similar to that prescribed under the Navigation Act.

Conference also agreed that the general aim of management in relation to major fishery stocks should be to maximise the yield. It recommended that the various authorities examine existing regulations and repeal obsolete provisions. It suggest that, wherever possible, the specification of gear which might be lawfully used, and the determination of other fishing restrictions, should be based on the results of field tests. It was also considered that the results flowing from new regulations should be watched closely to ascertain their effectiveness.

In the field of fisheries statistics, Conference accepted, in principle, the model system prepared by its Statistics Committee for the collection and tabulation of catch and effort statistics in Australia. Uniform monthly return forms are to be drafted by the committee. The States will inform the committee of the species in respect of which particular statistics are required, and whether minor variations are needed to meet conditions peculiar to the different States and Territories. When the revised system of collecting catch statistics is to be implemented, it will be given adequate publicity through the press, radio, and trade journals. Daily tally sheets will be made available by the States to the fishermen to enable them to keep more accurate records and a bridge log book will be issued to about 10% of selected fishermen. This book will become the personal property of the fishermen concerned.

Matters deferred for further consideration or investigation included items concerning the need for research into the selectivity and the efficiency of nets of both synthetic and natural fibres, and the establishment of quality and trade standards for fish and fisheries.

Entertainment.

Conference delegates and departmental officers, together with friends from the University, the Museum, and C.S.I.R.O., were guests of the Minister at a buffet dinner held at the Palace Hotel on the evening of May 31. Additionally, many of the visitors were

several days in the heart of the crayfishing area at the Wallabi and Easter Groups, the delegates returned to Geraldton and were guests of the Mayor, Mr. C.S. Eadon-Clarke, and Councillors at a civic reception held in the Municipal Chambers. The Mayor, in the course of his welcome to the delegates, pointed out that the dollar earnings from the crayfishing industry played an important part in the nation's and the town's economy. In his response, the Secretary for Agriculture and Chairman of the Sea Fisheries Board of Tasmania, Mr. F. W. Hicks, said that he had been impressed with the atmosphere of the town, which he said was "pulsating with growth, confidence and energy." He considered that the combination of agriculture and fisheries in the Geraldton district made it an almost unique area, and he expected it to grow to a most important position. The Assistant Director, Division of Fisheries, Department of Primary Industry, Canberra, Mr. A.G. Bollen, referred to the need for research into the best methods of maintaining fisheries and said "It would be a shocking thing if this area were fished out." Dr. A.G. Nicholls, Principal Research Officer, Division of Fisheries and Oceanography, C.S.I.R.O., mentioned that when he had lived in Western Australia some yearsago he had often visited Geraldton, and probably was prejudiced in its favour. He expressed his interest in all that he had seen and thanked the Mayor and citizens, and the fishermen in particular, for their hospitality.

The delegates were accompanied by the Director, Mr. A.J. Fraser; the Supervising Inspector, Mr. J.E. Bramley; and the Research Officer, Mr. B.K. Bowen. Inspector R.M. Crawford, of Geraldton, was also in the party.

Conference Decisions.

A number of the items on the imposing agenda, after considerable discussion in committee and at conference level, were referred for decision to the forthcoming ad hoc meeting of Ministers which it is hoped will form a Fisheries Council. Those items included the importation of exotic fishes for cultivation as food, the degree of State participation in training courses for field officers, and the establishment of priorities in relation to economic research directed towards the development of fisheries.

Items agreed upon at the conference included the establishment of a Western Fisheries Research Committee along the same lines as the South-East Pelagic Fisheries Committee. It was agreed that our Director, Mr. Fraser, be chairman, and that representatives of C.S.I.R.O., the Department of Primary Industry, the University of W.A. and the Western Australian Museum be invited to join.

taken during the weekend to sites and vantage points around the metropolitan area, to the Fremantle fishing boat harbour and fish-markets and to private homes.

The Conference will conclude on June 1 and most delegates will return to their respective homes by the week-end. Some, however, will remain to discuss matters arising out of the Conference with local interested persons and officers.

BIRD SHOW TO BE RESTRICTED

Late last year the Avicultural Society of W.A. wrote to the Minister advising that it would like to prepare a display of Western Australian birds for the Empire Games, to be held in 1962. The Society said that it had already approached and received support from the Lord Mayor of Perth (Sir Harry Howard), who is Chairman of the Organising Council of the British Empire and Commonwealth Games Committee, 1962. The Society expressed its desire to put on a high-class show and, to make the display more comprehensive, sought approval to take a number of protected species for the purpose. After due consideration, and on the recommendation of the Fauna Protection Advisory Committee, the Minister has advised the Avicultural Society that while he would have no objection to the display of aviary-bred birds, no permission could be granted for the taking of protected species from the wild for the display. It was feared that to do so would cause an inescapable amount of mortality amongst species not normally caged.

SHARK BAY JETTY

Advice has been received from the Minister for Works, Mr. G.P. Wild, that the Government has approved the provision of a low-level landing bay at the end of the Shark Bay jetty. He added that plans were being prepared and this work would be put in hand as soon as possible. The provision of the landing bay had been requested by Shark Bay fishermen to facilitate the landing of their catches which they anticipated will be considerably augmented as a result of the expansion of the processing works in the township.

No decision has been reached in respect of the other facilities requested by Shark Bay fishermen. These included a motor for the winch on the jetty and brighter leading lights.

SCIENTIFIC SUB-COMMITTEE ON RESERVE

At is last meeting, the Fauna Protection Advisory Committee set up a sub-committee of scientific members whose task it will be to evolve a plan of management for the fauna reserve at East Pingelly. This reserve, it might be remembered, is an exceedingly important one as it contains an extraordinarily large number and variety of marsupials. The committee hopes it will be able to use the plan when evolved as a model for the management of the other reserves under its control. These now total more than 100.

FISHERMEN'S ADVISORY COMMITTEE

It would seem that the purpose and functions of this important statutory body are not fully understood by some officers who have recently joined the staff. A brief definition of its functions and a short statement of the procedures it adopts may, therefore, not be out of place.

The Fishermen's Advisory Committee was established by an amendment of the Fisheries Act passed in 1946 and assented to in 1947. Its constitution provides that it shall consist of not less than four nor more than five members appointed by the Minister. Each is appointed for a limited term but may be re-appointed at the expiration of his period of office. The Director (as Chief Inspector of Fisheries) is chairman ex officio. Of the obligatory members (other than the chairman) one represents commercial crayfishermen, one fishermen operating in estuaries and on beaches, and one deep-sea fishermen other than crayfishermen. The Minister may also appoint, and from the Committee's inception has always appointed, a fifth member to represent non-commercial fishermen.

As constituted today the committee comprises the following:-

(a) A.J. Fraser, Director, chairman;
(b) G. Travia, Geraldton (crayfishermen);
(c) W. Matthei, Yunderup (estuary and beach fishermen);
(d) N.H. Wright, Quindalup (deep-sea fishermen);
(e) R.C. Smith, Perth (non-commercial fishermen).

Mr. H.B.S. Shugg, of Head Office, is Secretary.

The functions of the committee, which meets when and where it decides or as determined by the chairman, and which is given power to regulate its own procedure, are thus defined by the Act:-

(i) to inquire into and report to the Minister upon any matters referred to it by him or by the Chief Inspector of Fisheries in relation to the fisheries of the State; and

(ii) to advise the Minister on questions relating to the management, control, protection, regulation and development of such fisheries, and to make such recommendations as it thinks fit in relation thereto.

It is the Committee's policy, as far as conveniently practicable, to tour the major fishing centres at least once a year. Prior to the annual visit, notice is given through the press and by other means of the dates of the forthcoming sittings. At the same time an invitation is given to any person or group of persons who so desires to present evidence in regard to any matters relating to fisheries. Evidence was formerly usually given by individuals in camera, but latterly the trend has been to attend in groups. An endeavour is made to make the sittings as informal as possible, and no evidence is disclosed if a witness asks that it be kept confidential. Witnesses are not sworn.

When the hearings have ended, the committee sorts and sifts the evidence, and finally prepares a report, with or without recommendations, for submission to the Minister. In this connection it should be clearly understood that the committee is in no sense an executive body - it has no power to make determinations. It may report and recommend only.

Of recent years the committee - not always the entire membership, at times three or four members only - have visited virtually every part of the coast between Carnarvon and Cheyne Beach. Voluminous minutes are kept of all proceedings, and while witnesses' evidence is not recorded verbatim, care is taken to set down all the essentials. Thus, in years to come, there should be readily available to a new generation of fishery administrators and research workers a first-hand account of the condition of the fisheries as they now exist, and have in fact existed since the committee's first meeting, viz., June 10, 1948. We often wish we had something like this on record in relation to earlier years!

ADVISORY COMMITTEE PERSONALITIES

ALEXANDER JOHN FRASER, Director of Fisheries, etc., is ex officio chairman of the committee and has held office since its inception. Born in Sydney, N.S.W., he completed his formal education at Sydney High School in 1919 and in the following year joined the Fisheries Branch of the Chief Secretary's Department as junior clerk. Later he became inland fisheries officer and later still transferred to the administration, where he remained until July, 1938. In the meantime he had been responsible for the establishment of the Fishing Industries Association of N.S.W, of which with departmental approval he acted as organising secretary. In August, 1938, Mr. Fraser was appointed Chief Inspector of Fisheries for Western Australia. In 1944 he was seconded to the Department of War Organisation of Industry to organise fishermen's co-operatives, and during his 18 months in that Department visited almost every part of the Commonwealth, travelling over 50,000 miles on the job. In 1950 the title of his office was changed to Superintendent and again in 1959 to Director and Chief Inspector. Mr. Fraser is a past president of the Royal Society of W.A. and a member of the State committee of C.S.I.R.O. He was for six years president of the Civil Service Association of W.A., and is a justice of the peace for the State and a Rotarian.

Mr. A. J. Fraser

ROLAND CLAUSEN SMITH, the representative of the non-commercial fishermen and a member since the committee's inception, has made yachting and fishing his lifetime hobby. After overseas service with the A.I.F. in World War I, Mr. Smith returned to Western Australia and entered the textiles business. Some years later he established the firm of Roland Smith and Co., manufacturers and importers of softgoods. Today he is the senior partner. In World War II he joined the R.A.N.V.R. with the rank of Lieut.-Commander, and served for three years as Staff Officer, Coastal Craft. Commodore of the Royal Freshwater Yacht Club for two terms (1932-3 and 1940-42) Mr. Smith has during the whole of the past 52 years owned yachts or motor cruisers. He now owns the 60-ft. "Pollyanna." Mr. Smith has fished all outside waters from Shark Bay to Cape Naturaliste, although his prime love has always been the waters around Rottnest Island, of whose Board of Control he has been a member for many years. He is president of the Navy League (W.A. Division), patron of the W.A. Game Fishing Association and a Rotarian.

Mr. Roland Smith

WILLIAM MATTHEI joined the original committee as representative of estuary and beach fishermen. He was not re-appointed when his first term expired, but again became a member when his successor's term ran out. Mr. Matthei was born in Sydney, the son of Otto Emil Mattei, one of the best-known oyster farmers of the time. At 15 he associated himself with his father's business at Georges River, where the Matthei family still have considerable oyster farm holdings and continue to win prizes at the annual Oyster Farmers' Conference. Mr. Matthei still retains his interest and makes frequent visits to Sydney on this account. Afterwards he worked for some years with teams of experienced fishermen on beaches and in estuaries. In 1908 he went to Eden, N.S.W., lobstering and deep-sea fishing, and then to Mallacoota Lakes in Victoria. Appointed inspector of fisheries in the W.A. Department, Mr. Matthei arrived in this State in 1914, and after a short time in the metropolitan area was sent to Shark Bay to take charge of netting operations for the ill-starred State Fish Supply. Later he went to Mandurah as assistant inspector but after three years resigned to start mullet canning. He carried on his cannery for 12 years and then took up full-time fishing in Peel Inlet, finally retiring in 1955. He was for some years a member of the Murray Road Board, as well as holding executive positions in the Mandurah Fishermen's Association. He has also held office as secretary of the State Fishermen's League.

Mr. W. Matthei

GAETANO TRAVIA, who represents crayfishermen, was born the son of a fisherman at Capo d'Orlando, Sicily, and came to W.A as a lad in 1914. He spent some five years at Geraldton primary school, and despite his father's protests decided at 14 to become a fisherman. Travia snr. refused to teach him but nevertheless found him a berth with one of Fremantle's leading fishermen, V. Cuocci. At 20 Travia secured his own boat and started snapper fishing. Next year he married the daughter of F. Merendino, another ace-fisherman, and now has a family of six sons and three daughters. In 1936 he commenced fishing with his father-in-law with one of the first fishing-boats in this State to install diesel power. Crayfishing out of Geraldton ever since, he now operates the 72-ft. "Lady Joyous", a converted Navy H.D.M.L., fitted with refrigeration and all necessary navigational and fish-finding aids. His crew consists of three of his sons. Naturalised in 1927, Mr. Travia was appointed a Commissioner for Declarations in 1958. He joined the advisory committee in July of that year.

Mr. G. Travia

NOEL HERBERT WRIGHT is one of the younger generation of fishermen, and was appointed to the committee in 1960, to represent the deep-sea section of the industry. Born at Nedlands in 1925, he completed his education at Perth Boys' High School, and in 1943 joined the R.A.A.F., with which he served for three years. Soon after his discharge Mr. Wright was selected to attend the C.R.T.S fisheries school at Cronulla, N.S.W., and upon completion of his course commenced fishing in the Busselton area. His principal interests are handlining for jewfish and longlining and netting for shark. During the autumn salmon and tommy rough season he, with his partner John Couch, fish at Eagle Bay and nearby beaches with the heavy seines so necessary on this coast. The partners operate two boats, the "Sequoia" and the "Naturaliste", of 20 ft. and 27 ft. respectively, both "beamy" vessels which they built themselves. Mr. Wright has taken considerable interest in the problems of professional fishermen generally, and has acted for some time as secretary of the South-West Fishermen's Association. He is a prominent Apexian.

Mr. N. H. Wright

HAROLD BAXTER SANDFORD SHUGG, the secretary of the committee, is a permanent officer of the Fisheries Department. As Fauna Protection Officer he is principally concerned with the protection of fauna, and is secretary also of the Fauna Protection Advisory Committee, the other statutory committee operating under the aegis of the Department. He was born in 1919 and educated at Perth Boys' High School. His first appointment to the public service was as a messenger in the Correspondence Despatch Office in 1934. Subsequently he was appointed in turn to the Farmers' DebtsAdjustment Branch of the Lands Department, to the Chief Secretary's Department and, before taking up his present appointment, to the Department of Native Welfare. During the war years he served with medical units in Australia and overseas in the South-West Pacific. On his return, he attended a C.R.T.S. course in Public Administration at the University of Western Australia and is currently studying towards a Diploma of Public Administration at the Perth Technical School. He is a foundation and life member of The Tree Society, and a member of the Royal Society, the Australian and New Zealand Association for the Advancement of Science, the Gould League of W.A. and the W.A. Naturalists' Club. He is also a member of Rostrum.

Mr. H. B. S. Shugg

FRESHWATER CROCODILES

Under the authority of the Minister for Fisheries, Mr. Hutchinson, a press release has been issued calling attention to the protection afforded the small freshwater crocodile known as Johnston's Crocodile. This reptile's legal status was reviewed recently by the Fauna Protection Advisory Committee which confirmed that protection should be continued for the reasons set out in the press release - the text of which is reproduced hereunder:-

"Despite the inherent dislike some people might have of all their kind, the small species of freshwater crocodiles known as Johnston's Crocodiles were protected, Chief Warden of Fauna (Mr. A.J. Fraser) said today. This meant, Mr. Fraser continued, that they were not to be destroyed for sport or commercially exploited.

"They were protected, the Chief Warden explained, because -

* being slow breeding animals, particularly easy to shoot and restricted to freshwater pools and rivers, they could easily be exterminated from limited areas;

* they were quite harmless to man and were timid creatures;

* they were part of the biota and of particular scientific interest as they were descended fairly directly from dinosaurs;

* their range in Australia was understood to be declining, probably as a result of human interference and predation.

In recent months, Mr. Fraser added, the Department had received several reports that a considerable number of these harmless creatures were being destroyed either as a so-called sport or for the value of their skins. He reminded all persons in the Kimberley Division, to which the species was limited, that they should note carefully the protection afforded these creatures as anyone who took them by any means for any purpose whatsoever, was liable to prosecution unless he was in possession of a special scientific license. The only exception to this general rule was that a native within the meaning of the Native Welfare Act, 1905-1960, was permitted to take sufficient for his family's food but not for sale, barter, or exchange."

DRIFTING TREES

In the March 1961 issue of this Bulletin, the recovery of samples of wood from a giant tree washed ashore at North Point, east of Albany, was reported. We failed to record, however, that at the same time Inspector J. Traynor noticed a separate log on the rocks a few yards away. This log, he said, appeared to have been there for a very long time but he took a sample of it in case it might be of interest. The sample of the log along with those taken from the tree were forwarded to Professor H.N. Barber, of the Botany Department of the School of General Studies in the Australian National University, Canberra.

Advice has now been received from Professor Barber that the samples have been identified by Mr. H.D. Ingle, of the Division of Forest Products, C.S.I.R.O. It transpires that the large tree was a member of the family of legumes and belonged to the genus Albizzia or Serianthes. He said that this group of trees was common throughout the tropics and had also been widely planted, so it was not possible to ascertain its point of origin. According to Mr. R.D. Royce, Officer-in-Charge, Botanical Branch, Department of Agriculture, three species of Albizzia have been reported in this State but none of them are believed to grow to the size of the Albany tree. The genus Albizzia is in the same great family group as wattles. Samples of the tree were found to contain marine borers but, although they were being examined by the Zoology Department of the University of W.A., it seems that they will not assist in pin-pointing the tree's place of origin.

Professor Barber went on to say, however, that the sample from the log proved to be much more interesting than that from the tree. It was identified by Mr. Ingle as being definitely a South American beech of the genus Nothofagus. Professor Barber advised that similar wood had been sent to him from Tasmania, Macquarie Island, Tristan de Cunha and South Georgia. He added that the Albany specimen, therefore, fitted in nicely with the known drift pattern.

Professor Barber would be interested to receive additional samples and details of any further trees which might be washed up along our shores.

ABROLHOS CRAYFISHERY

On page 76 are tables showing the production of crayfish at Houtman Abrolhos during the first month of the 1961 season. For comparative purposes the March, 1960, production is also shown.

It will be seen that this year's catch was well ahead of last year's; in fact the March, 1961, was greater than that of any previous month. The previous record was established in April, 1959, when 1,299,250 lb. was taken. This year's record was achieved, as the second table shows, despite the decline in the number of boats. However, it will also be seen that the fewer number of boats was offset by the greatly increased number of pots.

Area	March, 1960			March, 1961		
	No. of Men	Total Catch	Av. catch per man	No. of Men	Total Catch	Av. catch per man
		lb.	lb.		lb.	lb.
North Is.	67	267,673	3,995	81	388,315	4,794
Wallabi Gp.	78	332,863	4,267	68	358,611	5,273
Easter Gp.	94	479,311	5,099	87	496,147	5,702
Pelsart Gp.	43	180,076	4,188	56	315,857	5,640
TOTALS	282	1,259,923	4,468	292	1,558,930	5,339

Area	Number of Pots		
	1959	1960	1961
North Is.	1130	1356	2866
Wallabi Gp.	2738	2901	3304
Easter Gp.	2987	3778	3945
Pelsart Gp.	1511	1595	2167
TOTALS	8366	9630	12,282
No. of Boats	135	173	164
Av.No.Pots per boat	61	54	75

CLEARING HOUSE

Harvesting Wild Animals.

by John Hillaby.

Game-cropping - the harvesting of wild animals as a source of meat for Africans - has been carefully investigated in Southern Rhodesia by two Fulbright scholars. The economics of their pilot trials indicate that the technique is practical and more profitable than cattle ranching in the area.

Opinions about the merits of conservation almost invariably result in conflict between those who want to preserve areas of land with their attendant biota for aesthetic and scientific reasons and those who want to use the areas for the production of the immediate necessities of life. An effective compromise which is now being practised on a very limited scale in East and South Africa is game-cropping - the harvesting of wild animals as a source of meat and secondary products.

The idea cannot be said to be new. Deer-cropping has been carried out in the New Forest, England, for over 1,000 years, but like grouse shooting on the northern moors, the exercise has for the most part been confined to the privileged few. A more democratic approach to this aspect of applied ecology has been practised for several years in the United States, where antelope-hunters can shoot pronghorns for anything up to a hundred dollars a head without upsetting a relatively stable national population of about 400,00 animals. This has been achieved by keeping the principal concentrations of the antelopes under almost constant surveillance and adjusting the shooting pressure to the fluctuations in population densities. For the most part, the object of the hunt is the trophy, with the attendant field-craft and sportsmanship.

In Africa today the demand is for meat, and conservationists have been called in to at least a few areas to give advice about how it might be obtained without causing even more ecological disorder such as that which has been brought about by the practice of haphazard pastoralism with herds of alien animals. The cropping of wild animals or, as it has been called, "ranching in a zoo", is now being tried under European supervision by one tribe, the Waliangulu, of eastern Kenya, but no data are available.

Two Americans, Dr. Raymond Dasmann, of the Museum of Vertebrate Zoology, Berkeley, California, and Dr. Archie Mossman, Department of Zoology, University of Wyoming, have now carried out the first stages of an economic study of a comparative-crop that is to say, the production of meat from both wild and domesticated animals from adjacent regions in Southern Rhodesia. The facts which follow have been obtained

from Dr. Dasmann, who was recently in London. What he has to say is clearly of importance to African leaders who are considering ways and means of exploiting their territories, and the subject will be among the most important of those scheduled for discussion at the Pan-African conference on conservation in Arusha, Tanganyika, later this year.

The game study arose from a research programme into the larger mammals of the territory, initiated by Mr. Reay Smithers, the director of the National Museums of Southern Rhodesia. In the course of this work he asked for help from the United States, and it was provided under the Fulbright Act whereby visiting scholars are encouraged to start projects considered to be of fundamental importance and which can be carried on by the residents of the territory in which the exploratory work was done.

The study area chosen was the Henderson ranch, of some 135,000 acres, which lies about 130 miles south-east of Bulawayo. The owners were interested in the maintenance of wildlife, and since the beginning of 1959 only about half the ranch was devoted to cattle. The rest supported game. The owners agreed that if studies showed that cropping was economically feasible they would undertake to harvest and market wild animals on a sustained yield basis.

By ill-luck the study period was marked by severe drought and political difficulties. The game-area selected was a tract of about fifty square miles of low veldt, a region of flat Mopane scrub, broken by granite kopjes and dissected by steep-banked streams which helped to carry off rains normally between twelve and twenty inches. From general observations, including road-strip counts and the examination of spoor, the researches calculated that throughout the whole ranch - that is to say, on both the developed and the undeveloped areas - there were, among the commoner ungulates, some 6,000 impala, of which 2,100 were in the game study area; zebra totalled 1,800 (730 in the study area); kudu 500 (160); wildbeeste 400 (170); giraffe 100 (90), and so on for lesser numbers of animals, including duiker, water-buck and buffalo.

Among predators there were at least one resident lion and perhaps three or four leopards on the ranch; small numbers of cheetahs, caracals and hyaenas were also present, as well as large numbers of jackals and a "noticeable population" of smaller carnivores, such as bat-eared foxes, genets and servals. It was also clear the depradation by Man was by no means inconsiderable. In addition to legitimate kills, poaching was said to be commonplace, as the area bordered on a native reserve.

The researchers considered that unless the economic value of game could be quickly established and the technique of ranching developed, there would soon be, as they put it, "not enought game in the pastoral lands of Southern Rhodesia to worry about." On many of the ranches visited the process of extermination had started and was often well advanced.

In order to find out at what rate the animals could be cropped without endangering natural regeneration, Dasmann and Mossman studied the herds in actuarial terms. It was apparent, for instance, that about 28 percent of the total population of impala during the month of October consisted of nine- to ten-month-old lambs. Forty percent of the zebra killed between July and November were also found to be under two years old, and of the giraffe counted between May and September, up to 31 percent were immature. By the end of the rainy season last year, the investigators considered they knew enough about the game on the ranch to start a trial cropping programme, and a list of the numbers and species of animals which it was considered safe to crop was submitted to the local Department of Wildlife Conservation. It included 600 impala, 200 zebra, 80 steenbuck, 50 kudu and lesser numbers of ten other species. Permission was granted for all except a few of the less abundant species.

The shooting began last July. Dr. Dasmann said it was quite obvious that traditional sporting methods would have the effect of driving the game out of the cropping area, so the harvesters experimented, unsuccessfully, with some of the methods used by African poachers. But the use of snares, they found was both inhumane and inefficient and they were obliged to shoot from blinds by day and with the help of spotlights at night. Crippling losses amounted to 10 percent of the total kill, but by November they had shot about 450 head of game, mostly zebra and impala, but including a small number of other species. However, marketing difficulties were such that it was not before August that the first truckload of venison was driven to the butchers in Bulawayo, who paid 1s 3d a lb. for impala, steenbuck and duiker and 1s. a lb. for the rest. Jerked or sun-dried meats (biltong) fetched 4s 6d a lb. These prices were said to compare favourably with local beef and, on a per capita basis, it meant that an adult (65 lb.) impala was worth about £4, a kudu £12, a wildebeeste £14 and a buffalo (480 lb.) £24.

At first the butchers were enthusiastic about the meat, but they began to lose interest when large quantities arrived. Although there was an unlimited demand for meat in Southern Rhodesia (if it were sold at prices the African could afford), the crop from the Henderson ranch was retailed to the European population as a luxury, and inevitably, the market soon became saturated.

The demand dropped off. The weather became warm and at the end of their first season, the game-croppers, who had no refrigeration facilities, were obliged to drive their supplies in by night. The question to decide was : had it paid?

By a careful check on income and expenditure, Dr. Dasmann said they found that a single (1½-ton) truckload of game was worth about £160, from which had to be deducted the cost of transportation (£30) and ammunition (£5). In the extremely difficult conditions in which they had to operate, they discovered that it was possible to dispatch about eight truckloads of game per month, from which, on a commercial basis, it would be necessary to deduct the wages of a European game manager, the wages and rations of his African assistants, the cost of internal transportation on the ranch and a number of other miscellaneous items to the total of £240. This brought the net profit down to £760 per month, excluding depreciation. But to determine the annual income, it was obviously necessary to know how many animals could safely be killed each season. The outlook was promising. The two investigators found that what they had killed in the first season had had no apparent effect on the resident population. However, they were faced with the choice between gradually increasing the harvest each year until a point was reached where the population showed signs of decline, or increasing it to a marked extent in the belief that if troubles arose the shooting pressure could be quickly cut back.

It was calculated that if the whole ranch of 135,000 acres could be cropped, the net annual profit from thirteen different species of animals would be about £8,000, that is allowing for crippling losses, heat spoilage and general overheads, including a safety margin for unpredictable factors. The estimated income of £8,000 was considered to be minimal, because part of the ranch had already been developed for cattle and the variety of game among them was obviously much less than it would be without the domestic herds. For this reason it was not possible to compare the profit to be made from beef from the ranch as a whole with the profit to be made solely from the game. But a comparison of the two methods of ranching could be made on the fifty square miles study area.

If that area were developed as a separate cattle ranch at a stocking rate of one cow to thirty acres, it would yield - allowing for the cost of development - a net income of £506. The same area in its present state can yield £3,200 per year from game. (In terms of dressed carcases, the annual meat yields would be 94,500 lb. of market beef, compared to 125,000 lb. of game.)

However, if the area were developed to such an extent that it could stand a stocking rate of one cow to twenty acres (which would take some years of veldt improvement work), then it might yield £2,500 per annum for cattle, compared to the £3,200 for game.

Dr. Dasmann has made the point that it is virtually impossible to say how much game per acre the land could be made to carry if it were developed as it could be developed for cattle. Nevertheless, from the figures now available, there seems to be little reason to doubt that game ranching is both practical and more profitable than cattle ranching on land that requires twenty to thirty acres to support a cow. Much remains to be learnt about the ecology of game populations, and the investigators in Rhodesia feel that it is better to explore the problem during an actual game-cropping trial rather than in vacuo. They also emphasise that the profits made from the game on the Henderson ranch were for meat alone. In a commercial operation, the sale of valuable hides would have to be taken into consideration, as well as the potential income likely to be derived from hunting fees. The area investigated was by no means remarkable for its variety of game and, above all, there were almost no facilities for selling the meat to those in need of it - the Africans.

(New Scientist London March 23, 1961.)

Ross Group to Expand Interest in Australia

The Ross Group, Britain's largest fishing organisation, is planning to invest more capital in Australia's fishing industry.

Less than a year ago, the Ross Group acquired the processing plant and fleet of International Fisheries in Perth, Western Australia. The company was re-named Ross-International Fisheries and is now pulling its weight in the parent company's huge empire.

Len Johnson, principal of W. Len Johnson and the Ross Group's D.U.D. (director "Down-Under") foreshadowed the further investment of British capital in Australia's fisheries on his return from Grimsby this month.

In reply to a direct question, Mr. Johnson said, "The Ross Group is planning further expansion in Australia but, for obvious reasons, I cannot divulge its exact nature."

"But you can say this for sure The Ross Group is not interested in investing money in the Queensland fishing industry whilever there are so many government controls."

Mr. Johnson expahsised that the Ross Group believe in reciprocal trading.

In addition to its large distributing agency it was also putting a lot of money into the local fishing industry to help Australian fishermen.

Mr. Johnson said his most recent overseas trip was to:-

* Report to the parent in Grimsby on the progress of its Australian subsidiaries.

* Visit firms in West Germany who supply fish to Australia.

* Contact buyers in U.S.A. who handle his firm's cray tails from Western Australia.

The said the three things which impressed him most on the trip were:-

* The might and efficiency of the Ross Group.(Good on you, Len. You'll get a necktie from Jack Vincent for Christmas.)

* The progress in hygiene and mechanical fish handling in West Germany.

* The reaction to the high price of Australian cray tails in U.S.A.

You don't need to be with Len Johnson more than two minutes to know he's part of the Ross Group. This time back he talked for hours of the efficiency and esprit de crops, in the firm and of its huge new processing plant at Grimsby. And while he was in Grimsby the firm paid a million quid for a hatchery business.

In America, Len came in for a good deal of criticism from the fish trade over the high price of Australian cray tails.

"The distributors in America say the cray-tail market won't be as buoyant next season as this year. This will be accentuated if the trouble with Cuba is resolved," he said.

At present the U.S.A. is not buying crays from Cuba, formerly a big supplier. The Ross Group exported about 750,000 dollars worth of Western Australian crays to the U.S.A. this season.

(Fish Trades Review Sydney May, 1961)

What is the Future of Bight Fisheries?

Conflicting reports (none of them official), on the future of the Southern Trawling Coy.'s fishing experiments in the Great Australian Bight are keeping the Sydney Fish Trade guessing.

It appears that every time the big frigmobiles roll into Sydney with their 20-30 tons of Bight fish, they bring fresh rumours of a hold-up or a big change.

Latest report is that the "Southern Endeavour," Southern Trawling Company's big trawler, is tied up at Port Adelaide and will be offered for sale next month.

Now, from far away Grimsby in England, comes another report on the "Southern Endeavour's" future.

"Fish Trades Gazette" says:-

"A former Hull vessel, Southern Endeavour, is to be converted into a freezer-trawler. She was formerly the Princess Elizabeth, owned by the St. Andrew's Steam Fishing Co.Ltd., and was bought 12 months ago by the Southern Trawling Co.Ltd. of Adelaide, Australia. She is at present engaged in experimental fishing in the Great Australian Bight.

"A Hull man, Skipper Sydney Duffield, of Kirkella, has been skippering the vessel on her experimental trips, and he has just returned home by air from Adelaide. Commenting on the project Skipper Duffield said: 'It is too early yet to talk about results, but they are satisfied with the fishing part of the venture.'

"Much of the fish landed at Adelaide was snapper and flathead, but some went by road transport hundred of miles to the markets in Sydney and Melbourne.

"Skipper Duffield went on: 'The fresh fish market is finished, anyway. It is being abandoned here and the future is in frozen fish.'

"The marketing of the fish is to be the second stage of the venture, and the freezing will naturally play an important role.

"Skipper Duffield is to buy the equipment in Britain and it is anticipated that the conversion of the trawler will take about six weeks. When completed, the freezing of the fish will make the vessel independent of special fish quay facilities and she will be able to land at any port."

Skipper Duffield's statement has been discounted by Canberra officials of the Southern Trawling Co., who claim he has no authority to speak for the company.

His relief on Southern Endeavour, Captain May, was in Sydney last month and was piloted around the market by Mr. Eric Mansfield, managing director of Red Funnel Steam Trawlers.

Captain May's presence strengthened rumours that Red Funnel is trying to buy the "Southern Endeavour". Red Funnel owns four steam trawlers all of which are tied up in Sydney at present.

Mr. Mansfield told "Fish Trades Review" he had "nothing for publication" at present. Commenting on the Grimsby report, Mr. Mansfield said it would not be economic to freeze fish at sea in Australia.

(Fish Trades Review Sydney May, 1961.

Tuna Industry in Danger

The Australian tuna industry would collapse unless it had reasonable protection, a Tariff Board inquiry was told this month.

The inquiry was hearing an application by the Fish Canners' Association for increased import duties on overseas canned tuna.

The general manager of the South Australian Fishermen's Co-operative Ltd., Mr. R.F. Ware, said his society could not co-operate with imported tuna at prices at which it was being landed in Australia.

"Sales of Australian tuna are being drastically reduced because of cheap foreign goods pouring into the country, and undoubtedly the position will worsen," Mr. Ware said.

He said the tuna industry was already an export income earner and would increase its capacity.

"We are told that the present credit squeeze is primarily due to Australia's adverse balance of trade," he said. "Yet here is an Australian industry producing goods, which must improve the balance of payments, in imminent danger of being forced out of business."

The Chief Tariff Officer of the N.S.W. Chamber of Manufacturers, Mr. C.E. Gaundry, said that higher duties were needed to enable the local tuna canning industry to expand and complete with exports from low-cost countries such as Japan and Peru.

A director of Waters Trading Co.Pty.Ltd., Mr.L.R.K. Miller, who opposed the application on behalf of several importing firms, said the Australia-Japan trade treaty was expected to be revised soon.

"It would be a pity if Australia were to impose a penal rate of duty on tuna," he said. "It could have an adverse effect on trade negotiations."

The hearing will be resumed in Sydney at June 30.

(Fish Trades Review Sydney May, 1961.)

Giant Eels and Killer Fish Found by Scientist

President Kennedy's recent announcement in his message to Congress that America intends to intensify her explorations of the depths of the sea lends interest to an article in National Fisherman on recent discoveries in the strange underwater world.

These include giant eels, fish-killing plants which exude gas, and a fish whose sting could cause early death.

The American author, John L. Russell, Jr., who has several books on scientific matters to his credit, says the United States is falling behind other nations in exploring the sea and its resources.

He points out that in the seas and oceans about 500 million cubic miles of water form a gigantic reservoir, on the average more than two miles deep.

Mr. Russell refers to some interesting findings by Dr. Roger Revelle, of the Scripps Insitution of Oceanography in California. He believes that giant creatures may lurk in the ocean's depths.

"There, in perpetual darkness at near-freezing temperatures and under tremendous pressures of hundred of tons per square foot, they wage a weird struggle for survival in a world more mysterious to us than the surface of our planets."

Mr. Russell says the discovery that prompted this observation was undoubtedly that of eel larvae some 50 times longer than larvae of American and European eels. "These larvae indicate that creatures of the deep-sea trenches may reach giant proportions - possibly of sea-serpent type. Perhaps these monsters of the deep have never surfaced for man to see them."

With recent new developments it may be possible to predict Florida's "red tide," a condition involving microscopic water plants which give a red colour to the waters of the Gulf of Mexico, Mr. Russell goes on. The plants at the same time kill millions of fish and saturate the air with an irritating sort of gas.

Then there is a strange small fish which hitch-hikes rides with the bigger fish. "The little fellow is the remora, or disk fish, which attaches itself to other marine animals by suction cup-like discs. Mr. Russell points out that it is much easier for scientists to study a little fish about 10 to 12 inches long, than a huge marlin, sailfish or swordfish.

The stonefish, or scorpion fish, has been receiving scientific attention, and one scientist reports that the stone-fish's venom acts on a victim's heart and circulatory system.

In larger doses the poison can injure the muscular part of the heart wall. A human may perish within hours after being stung by this fish, and recovery from stings may take quite a few days or even weeks.

Another strange discovery was a new odd-shaped larvae eel, 12 inches long and transparent, with eyes peering from a tiny head about the size of a man's thumb-nail, found off Washington.

(The Fishing News London May 5, 1961.)

"Ghost Nets"

"Ghost" nets that go on fishing years after they have been lost as sea are presenting a novel problem in many parts of the world, especially in the heavily fished waters around Iceland.

Some of the problems created by "ghost" nets - which may be fancifully compared with the fabled Flying Dutchman - were discussed recently at the headquarters of the Food and Agriculture Organisation (FAO), Rome, Italy, by the Chief of the Fishing Gear Section of F.A.O's Fisheries Division.

"The gear concerned in Icelandic waters is the bottom-set cod gill-net made of non-rotting synthetic fibres, mainly nylon," he said. "Such nets are fitted with metal or plastic floats which, like the nets themselves, do not rot, and when the nets are lost by the fishermen, for instance due to broken buoy ropes, they are maintained in a fishing position by the floats."

"It is only recently that fishermen have generally realised that the lost bottom-set nets do go on fishing on their own," he continued. "This has been proved when nets are accidentally retrieved some months or even years after they were lost and are found to contain great quantities of rotten fish and fish bones as well as live fish.

"It is not suggested that this is at present a problem which threatens any fishery but it is quite clear that steps must be taken to prevent lost nets remaining in a fishing position," he stated. "But the extent of the potential threat is indicated by the fact that in Iceland each boat engaged in gill-netting operates 75 to 90 such nets, and that these nets, in total, stretch over a length of about 4 kilometres. In the heavily fished areas in Icelandic waters, where sea conditions are often very rough, many kilometres of nets are lost each year."

The Chief of the Fishing Gear Section pointed out that the threat arising from "ghost" nets is likely to grow more serious in those waters were gill-net fishing is practiced on a large scale but should also be given attention in the developing fisheries in Africa and Asia.

"Suggestions have already been made for solving the problem," he said. "For example, one proposal is that the floats of such nets should be attached by untreated cotton which would quickly rot away if thenets are lost. Released from the floats, the nets would sink to the bottom and cease to catch fish. However, float lashings of this

type would have to be renewed periodically and would be the cause of a lot of extra work by the fishermen.

"We have brought this problem to the attention of the International Council for the Exploration of the Sea and the International Commission for the Northwest Atlantic Fisheries, both of which are studying the problem in the hope of finding a practical solution," he said.

With the extensive and still rapidly expanding use of many varieties of synthetic fibre nets, there is need to take effective, practical action.

(Fishing Gazette New York April, 1961.)

A Meatless "Hot Dog"

It looks life a frankfurter.

It tastes like a frankfurter.

It has the texture of a frankfurter.

It's made from tuna.

At a recent Frozen Foods trade show, this reporter scented the tempting aroma of grilling frankfurters as he hurried past one of the booths. It came from samples conveniently offered and he tried one. "That's a particularly delicious frankfurter," he thought, and turned to note the brand. Then - and only then - did he discover he'd just eaten a piece of fish!

The brand was Ocean Fare Tunalinks. The product is a completely meatless frankfurter made from choice tuna fillet or loin of Blue-fin, Yellow-fin and Big Eye. It was developed by M.I.T. and Tokyo University graduate Dr. Yaichi Aikawa and is made by Tuna Products Corp. of Boston, Mass.

Here is a hot dog that anyone can eat on meatless days, and that anyone, "fish-haters " included, can enjoy every day. Tunalinks must be tasted to be believed; it is doubtful that anyone not previously informed would believe they were eating anything but a standard, meat-ingredient frankfurter of high quality.

Dr. Aikawa's original concept was based on some proven market experience: the successful merchandising approach of West Coast packers who, some 25 years ago, began associating canned tuna with chicken products. Per capita fish consumption in this country hovers around 10 lbs., that of poultry 30 to 40 lbs., while meat is in the neighbourhood of 160 lbs. If the association of tuna with chicken has been so successful, figured Dr. Aikawa, would not is association with meat- and meat in one of its most popular forms - have an even bigger potential?

The principal ingredient of Tunalinks comes mainly from the East Coast as well as Atlantic vessels and from overseas tuna fishing operations.

These tuna loins and fillets are prepared on board the fishing vessels and quick frozen right after their catch. The basic processing is very similar to that of meat curing. Upon receipt of fresh frozen tuna loins at the plant, they are trimmed and inspected for chopping operations. There emulsion curing is applied. The emulsion of tuna loins, binder, spices, etc., is prepared through chopper and homogenizer.

After its preparation, the emulsion is stuffed into a casing made from a cellulose base by means of a vacuum stuffer. Then it is linked into desirable lengths by an automatic linking machine. On the completion of curing and casing, links are placed in a smoke-house where they are recooked and hickory smoked. Right after smoking, high-temperature short-time cooking is again applied. Next the linked "sausages" are cooled and dried for the peeling operation. Automatic peeling of the casing is carried out by a Ty-link peeler.

The peeled tuna links are then placed on a conveyor belt for packing into cartons. Through a continuous overwrapping operation with Food Packaging Machine they are rushed to the quick-freezing step which is carried out with Amerio Contact Plate Freezers.

Both institutional and retail packages are available. Retail Tunalinks are packed 7 links to a 10-ounce carton, and 12 cartons to a master. Currently, they are being carried in the frozen seafood counters of such east coast chains as A. & P., Kroger, American, Grand Union, etc. Retail price is around 59 cents a package.

Institutional packed Tunalinks come 10 to a pound and are packed in 5-lb. cartons, six 5-lb. cartons to a master.

(Fishing Gazette New York March, 1961.)