Forest and Bird

Issued by FOREST AND BIRD PROTECTION SOCIETY OF NEW ZEALAND (Incorporated)

WHITE-FRONTED TERN

NUMBER 40

MAY, 1936

FOREST AND BIRD PROTECTION SOCIETY
OF NEW ZEALAND (Inc.)

HEAD OFFICE: WELLINGTON, N.Z.
BOWEN HOUSE, BOWEN STREET. P.O. BOX 631.

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CONTENTS OF THIS ISSUE.

Concerning a Heritage of Basic Import.

A CONFERENCE of Acclimatisation Societies was held in Wellington on the 21st April, with the object of complying with the request of the Minister of Internal Affairs (The Hon. W. E. Parry) that Acclimatisation Societies "should either hang together or hang altogether." An effort was made in the desired direction. Much discussion took place with regard to the artificial rearing of game birds and the destruction of alleged and real enemies of game birds.

There is a great deal more that is relevant to the gamut of Acclimatisation Societies than such topics. What does this word mean? In brief, to acclimatize means "to habituate to a new climate." Whatever it is one wishes to acclimatize must be adapted to its environment. No reference, however, was made to the basic requirements essential to the conservation of game-birds—cover and food, especially winter food.

The most essential condition so far as the requirements of our native birds are concerned—restoration of the natural habitat—was entirely lost sight of, but for the notable exceptions of the remarks of Messrs. W. J. Parkin of Whangarei and H. J. Duigan of Wanganui. This latter gentleman stressed the desirability of planting winter berrying and nectar-producing plants in order to carry native birds through the winter period, and stated that excellent results had been obtained in his district because of such a policy.

The departmental Under-Secretary (Mr. J. W. Heenan) took up the skein with judicial nicety: "the efforts of societies and their members to preserve native birds went a long way toward disposing of the criticism that the societies were only rod and gun clubs. Ranging of protected birds could not be thoroughly efficient until there was at least a skeleton staff of qualified field officers, and he hoped that as finances permitted a field staff would be built up to co-operate with Acclimatisation Societies and other organizations in guarding native bird life."

It is certainly strange how human nature works on similar lines in various countries. In the United States of America a number of similar conferences have been without avail in checking the decrease of game birds. Recently, however, matters reached a critical stage. President Roosevelt called a conference **of all interested** in the conservation of the country's natural resources. The result was the formation of a general Wild Life Federation. He has built something designed to preserve and protect a heritage.

Thousands of New Zealanders have not realized that it is due to the bush that water seeps instead of scours when the blessed rain falls like a sheet on mountain top and wooded slope and on the upland and lowland plains. It is our heritage (capable of expression in terms of money by the Government Statistician) that there is a maintenance of forest growth so that there shall be natural regeneration. If farming is a primary industry, and agriculture is to flourish, then conservation of natural resources is a basic matter of utmost importance. It is a condition precedent upon which depends the very existence of agricultural endeavour. The problems concerning the conservation of all the various branches of any country's manageable natural resources are inextricably inter-allied and inter-woven with one another, therefore no good and lasting national benefits can result from the calling together in conference of a group merely interested in one section, be it fish, game, native birds, forests or others. President Roosevelt's action in calling together all groups concerned was wise and statesmanlike. Prior to the President's action the many groups and sections had been divided largely into two main camps. On the one side was the disorganized majority standing for efficient conservation and on the other the organized minority consisting of ammunition manufacturers, various vested interests, and that section of the hunters whose vision does not extend further than an oncoming shooting season.

Owing to the lack of group-co-ordination in any visible attempts at conservation in New Zealand the results achieved so far are not only neglibible but of a retrograde nature despite the fact that sufficient revenue is probably disbursed to attain tangible results with co-ordination.

A FUTURE FIRST OF MAY

Hunters Increasing—Ducks Decreasing—Waterfowl Sanctuaries Practically Nil.

DEER: An Instance Of NON-PARTY POLICY

Agriculture is Primary;

Natural Conservation is Basic.

What About Deer Stalking?

None is so blind as he who has a biased outlook. Some deer-stalkers still are trying to arrest the Government's war on deer. In the April number of "N.Z. Fishing and Shooting Gazette," for instance, objection is taken to the declaration of the Minister of Internal Affairs (The Hon. W. A. Parry), "I am going to declare war on deer".

The voice of Lord Latymer, who is a stranger to the Dominion, is supported very enthusiastically by a section of deer stalkers. Lord Latymer has implied that he thinks it would be a wonderful thing for New Zealand if the deer running wild here were culled (or encouraged) so that sporadic stalkers might not only shoot the best deer, but also bear away to taxidermist and smoke-room trophies of the chase as real evidence of "my stalking and shooting prowess" in that wonderland New Zealand'.

Deer are destroying saplings; saplings replace dead trees. Deer are trampling to destruction the ferns and mosses on the forest floor. The ferns, mosses and covering prevent excessive flooding. Deer are destroying forests and causing top soil erosion and floods —denuding higher lands and causing economic losses on the low lands. Deer are destroying food and cover for trout in rivers.

Now New Zealand forests are the result of thousands of years of unique isolation from animal molestation. The deer stalkers would like to have the gate opened so that deer with many-pointed antlers would roam our forests and increase year by year the destruction that is already very grave. Government hunters should shoot only rabble and leave better deer as attractions for tourists. So say some deer-stalkers.

A forest consisting only of older trees and with neither seedlings, saplings nor natural floor covering is the forest created by deer. That means a forest doomed to extinction. A New Zealand with no forest would be a gaunt desert-like land with its fertility washed into the sea; its native birds but memories; its hillsides rocky; its plains stony and sterile. The rivers would be converted into merely sporadic torrents, and would therefore contain no fish.

A Deer-barked Tree.

Such is the country that would be created if the desires of some deer-stalkers were heeded. But, alas for their cause! Recent reports suggest that the champion of "the deer do no harm section" (Lord Latymer) has changed his views and is now on the way to join that majority which he at one time dubbed as "fern fanatics."

Altruistic and whole-minded New Zealanders may be thankful for the fact that the late Government decided that deer must be exterminated if possible. The ex-Minister (the Hon. Sir Alexander Young) went to the wilds and saw for himself.

So profound, and so inevitable are the consequences of forest destruction that the issue is far beyond and above party politics. The forces are inexorable. The present Minister, the Hon. W. E. Parry, has displayed sincerity and some sound sense in his views on wild life to date. Best of all, he seems to be instilled with the single aim of doing the best thing for New Zealand, regardless of groups (personal or transitory), and petty interests. He has done more than follow the ex-Minister's lead. He has strengthened the attack.

Natural forces and natural factors in New Zealand are above and beyond all others. For such of us as dwell in towns, for whom the rain and the wind mean less than they should, imagination based on knowledge is needed to span for us the gaps in our outlook. Natural harmony may not be disturbed all at once in one day except by a holocaust, but so long as deer are in New Zealand the natural harmony is being disturbed every day, sapling by sapling, seedling by seedling. Such a toll accrues and is accruing, that nothing but non-party policy steadfastly pursued will save us and our sons from greater ruin than that caused to date. It is true enough to be tragic that, because of the ravages of deer, much bush stands childless, dated and doomed.

Agriculture is primary; natural conservation is basic.

New Zealand Has Two Crows.

This Ventriloquist May be Singing Within a Few Yards but is Even Then Difficult to Locate.

(By E. T. Frost)

NEW ZEALAND has some beautiful birds, and the North Island Crow, or Kokako, is a delightful but elusive and little known New Zealander, charming to see and lovely to listen to. He is a ventriloquist and occasionally is seen and heard on the fringes of bush close to settlements. His scientific nomenclature is Glaucopis Wilsoni (North Island); or Glaucopis Cinerea (South Island). The Waikato Maoris call it the "Hoongi."

One usually associates the name "Crow" with the bird so well known in Great Britain, but our crow is quite a different bird in many ways.

In the first place its voice is totally different from the raucous one of its European relative. Its voice is clear and resonant and may be heard early in the morning in the forest gullies and ravines where it goes to nest. The notes sound like "Whio-Ku-Ku-Ku." Although, one is standing within a few yards of the songster, it is a difficult matter to locate it, as there seems to be a ventriloquial effect with the sound. If one keeps quiet it is quite probable that the inquisitive bird—which has no doubt been eying the stranger in its domain—will hop out into sight. Crows are very tame in their native haunts where they have not been disturbed with the sound of firearms, but, alas, such areas are only too few now.

Being a poor flier it does not frequent the tree tops as do the pigeon and kaka, but it lives in the lower forest scrub. It is very fond of the poroporo berries, and in the early days of European settlement, before all the bush was destroyed, in many of the now close-settled districts it would generally be found on the edge of any piece of bush around which the poroporo shrub grew, especially after a bush fire had cleaned up the felled portion, as this plant came up profusely at such time. These beautiful birds could be seen hopping and feeding in the shrubs, and at times they would hold a berry in the claw and eat it like their forest mates the Kakas. Their flight was very poor, and they relied on the speed and dexterity with which they could hop through the scrub, to escape an enemy. They were adept at concealing themselves also.

The main distinction between the North and South Island species is in the colour of their wattles. That of the North is blue, and its Southern relative's is orange. In colour both species are alike, dark bluish grey, but there is a slight difference in the colouring of the tail; that of the North Island being black, while the South Island bird's is bluish grey with the exception of the tip.

It is pleasing to note that these interesting birds have been seen in some unexpected places lately, quite close to settlements where only small areas of bush have been left. They have been definitely seen and their beautiful notes heard in the early morning.

It is hoped that they will be preserved in these sanctuaries to pour forth their song, so that some of the younger generation may gain some idea of what the morning chorus of the birds was like, before the destroying hand of man descended on their habitations.

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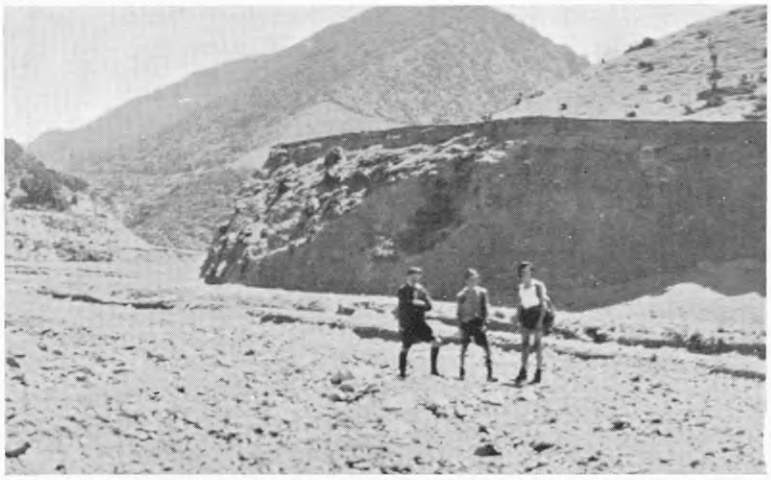
FOREST and BIRD SOCIETY BADGES.

Metal badges nicely designed in gilt and nephrite green enamel are now being issued by the Society, at the price of 1/6, or in silver and paua shell at 7/6 each. These make handsome brooches.

The March of Ruin that Nature Abhors.

Views of the aftermath of forest destruction in the Nelson district, showing the movement of rootless soils under the action of unhindered wind and water. Such scenes as these are to be met in many more places in New Zealand than should be the case.



Top.—A valley scene of waste, where the unarrested water has rushed down and borne away vast quantities of precious top-soil and humus. Eighty years of wantonness, neglect and ingnorance has brought this result. What of the next twenty years?

Bottom.—What happens—what is happening—when nature's binding of forest and plant life is removed from steep faces and high places. Wind and water shift the soil which starts on its course to the sea. Just how the soil finds its way to the sea-bottom and how that is proved is shown in an article elsewhere in this number.

PICTURES AND STORIES REQUIRED.

The Forest and Bird Society constantly requires photographs and articles. A first prize of £1 will be given for the most suitable photograph. Any matter submitted will be returned when requested. The material desired is that likely to be of a general public interest in relation to the Society's work. Members can help in this manner to assist us in improving this journal.

EXPLORERS DIARY OF 45 YEARS AGO.

The Waning of Beautiful Wild Life; a Contrast.

(By Arthur P. Harper)

IN THE EARLY NINETIES I had the privilege of working with the late C. E. Douglas in exploring, for the first time, some of the wild mountainous country of South Westland. Douglas was one of the great explorers of that part of New Zealand as well as a keen observer and naturalist. Amongst some notes of his in my possession he comments on the decrease in our Native birds which was noticeable even 45 years ago. He always expressed his views with a certain dry humour.

In dealing with imported birds he wrote:

"The Acclimatisation Societies' plan appears to have been to introduce a bird or beast, never mind it's nature and then in a few years to start poisoning them! Imported birds even when brought round the world still retain the hereditary instinct which for generations has protected them from cats, vermin, guns and small boys. They will continue to thrive where the native birds—who had no enemies—succumb."

There is much truth in this for the decrease, almost to extermination, of our bird life in South Westland has been due to such imported enemies as bird diseases, rats, cats and weasels—enemies entirely unknown to our birds in their original state. They have thus fallen easy victims.

When the West Coast became overrun with gold diggers in the 'sixties the bird life was wonderful. Wekas were exported by the Maoris in hundreds, to the North Island and did not appear to diminish as they were carefully preserved by the Natives.

Douglas talked of catching Roa's, the big Kiwi, which is a rare bird to-day. Even in 1895 they existed on the West Coast, for I heard their deep whistle in several localities—but, I never saw one. The ordinary grey Kiwi was very plentiful. Ducks were to be found in thousands, and the whole bush was alive with smaller birds. Unfortunately the digger liked his cat, but if he went off hurriedly, to a new find of Gold, the cat was left behind if not handy—result—numbers of wild cats spread over the low country.

By 1893 when I took up the exploration of some of the rivers of South Westland the bird life was still plentiful, but according to Douglas the decrease was very serious— this was probably the work of cats.

In 1895 in my exploration of the Landsborough River I found that weasels had got through from the East and were obviously playing havoc. Such birds as Kakapo, Kiwis and Wekas were getting scarce in the district. We were the first men to go down the East side of that river so the decrease was certainly not due to man, while deer had not got into that country. The only bird which seemed able to make any sort of stand was the weka. If he saw the weasel first it was the weasel which suffered, and as to cats it is certain the wekas were responsible for the killing of many kittens.

The birds were of course an endless interest to us. They were tame and never having seen a man before were fearless. As forecasters of weather some were invaluable. We had to rely largely on makeshift shelters of bark or under rocks, so any warning of bad weather was welcome. A weka oiling his feathers was an infallible sign of coming rain. The bush canaries collecting in flocks and twittering forcasted a bad storm within twenty-four hours or so. All this added to the interest of penetrating this wild country for the first time. To-day that interest has gone. Let me give an instance.

In 1894-5, with a Maori, I was nineteen weeks from habitation exploring the Karangarua River watershed. We were the first men in this country. Kiwis were everywhere, never a night passed without hearing their whistles on all sides, Wekas took charge of every bivouac and camp. The Blue Mountain Ducks had their claims marked off, right up the river, on every inland lake several pairs of crested grebes could be seen. Kakas, Native Thrushes, that beautiful songster the Orange Wattled Crow, Saddle-backs, Tuis, King-fishers, Bell Birds, Canaries and the ubiquitous Robin—that quarrelsome little bird which only looks upon a man as one who kicks up grubs for him while blazing a track. In the beech forest country Kakapo were plentiful.

In 1929, with a party, I crossed from the Hermitage and again went down the Karangarua River—We saw one blue duck, two wekas, and heard one kiwi—We did not see or hear a single small bird in the bush and apparently the kakapo had disappeared—We did however see one weasel alive and one dead. This told the tale. The bush was still in its primeval condition. No deer, chamois or other such plant eating animal had yet got into the valley. What a silence and an emptiness there is in these places! Forty-five years have wrought their changes. What of the future?

Vigorous Example of our Insect Pests

The Emperor Moth

The specimen was raised by Mr. G. V. Hudson, F.E.S., Wellington.

THE PRESENCE IN NEW ZEALAND of this moth is an ominous circumstance. It belongs to Australia. How did it get here? Here is an example of the work to de done in minimising the possibility of such pests as this moth, gate-crashing to the detriment of arboriculture and the economic welfare of New Zealand.

Entomologists, with characteristic zeal and energy, are planning to exterminate insect and plant pests, some, such as ragwort, being a positive menace to the Dairy Industry. New comers such as this moth, are arriving periodically without notice, and are allowed to become thoroughly acclimatized before they attract serious attention concerning the possibility of their becoming a menace. Examples are the white butterfly, the cattle-tick, and others. Here is a new possible pest.

The Emperor Moth is an importation from Australia and is now well established in the Wanganui district. This specimen measures $5\frac{1}{4}$ in. by 2 in, while its cocoon is $1\frac{1}{2}$ in. by 1 in. The larva feeds on such plants as the Australian pepper tree and blue gum, and it can bite through the leaf stalk of the former with one bite.

When all the Australian plants are consumed what will the larva live on then? That is a question that no entomologist can answer. None can pretend seriously to answer that question for the reason that exotic life must readjust itself, and there is no exact guide or experience on which to base calculations. Hence "economic entomology," as it is called, spells danger.

How are we going to get rid of it? That is the question—another to be solved.

The Pukeko, Acquitted in 1930, Should be Protected

RESULTS OF FORMER RESEARCH REPEATED

Peace,—or Gun Fire?

Photo courtesy Edgar F. Stead.

The First Out. Pukeko Nest, Young and Eggs.

FAIR PLAY is bonny play, and the pukeko is entitled to his full measure as a true New Zealander.

He does a great deal of good, and is so trusting, so innocent and so ungainly in movement that nobody but a gun owner with a poor idea of sport would desire to shoot such a bird.

The past practice was for the Minister to issue a special permit to any farmer who complained of damage being done by the pukeko. A full investigation of the food habits of the pukeko was made seven years ago. Yet, Acclimatisation Societies have persuaded the Minister to declare a short season for pukeko! Hunters have suddenly professed a desire to aid farmers—a trick practised in other countries with the same object. It is not denied that the bird may at times do some little harm, but the damage is frequently grossly exaggerated.

Many farmers will resent the shooting of pukeko and order shootists off their properties. On a former occasion, one farmer was so incensed that he chased away shooters with an axe. In another district, Paraparaumu, an Acclimatisation Society member incurred much illwill by shooting pukeko which had been hand fed and cared for by some of the residents. School boys and others had become much attached to these birds.

It is conceded that the man on the land has to put up with much as the result of damage done by creatures imported to provide shooting, but the pukeko is indigenous and is accepted with the land, not thrust upon the farmer, who is usually well able to look after his interests. Most sportsmen would not cross the road to kill pukeko because they are after sport, not merely killing.

A stomach content survey was conducted by the Department in 1930, to ascertain whether the pukeko really did all the harm attributed to it by Acclimatisation Societies. Specimens were collected by Acclimatisation Societies from various districts and the examination was official.

No real sportsman would call pukeko-shooting sport. What then, is the object? Upland game birds, such as pheasant and quail, are becoming a thing of the past, while waterfowl are also rapidly decreasing, so the shootist has to fall back on the humble pukeko! Alas! What degradation!

It will be noticed that three birds consumed some wheat in the autumn after all crops had been gathered. They must therefore, either have taken the grain from the stacks, or gleaned it. Otherwise the bill of fare was mostly macerated vegetation. It may be asked, "What is the use of spending money on research work if the results are ignored?"

THE ACQUITTAL!

Birds and Taken Date	Locality	Stomach Contents
	MANAWATU	
2	Swamp	Macerated green material, mostly grass.
2 6/1/29	„	Macerated green vegetation, and seeds of *Lolium perenne* and buttercup.
4 19/2/29	From swamp with crop of partridge peas in near vicinity	Macerated vegetation, and seeds of *Lolium perenne, Poa annua, Eleocharis ovata, Carex* sp., and *Glyceria fluitans.*

Birds and	Taken Date	Locality	Stomach Contents
2	21/5/29	Taken on crop of rape	Macerated vegetation, fat-hen and sedgeweed.
2	29/5/29	From swamp area with crop of rape in near vicinity	Macerated vegetation (grass) and duckweed.
		OTAGO	
2	5/11/28	From vicinity of cropping-areas	Small roots and little macerated green material; also remains of insect-larvae and spider.
2	11/12/28	„ „ „ „	Macerated green material and seeds of *Poa pratensis*.
2	14/1/29	„ „ „ „	Macerated grass and part of an insect.
2	12/12/28	„ „ „ „	Macerated vegetation and clover-leaves; also seeds of *Eleocharis ovata*.
2	9/2/29	„ „ „ „	Chewed up vegetation, and seeds of *Eleocharis ovata*, *Alopecurus geniculatus*, and *Poa annua*
2	6/3/29	Swamp	Macerated vegetation.
2	4/4/29	„	„ „
2	18/3/29	„	Few rush seeds and some rye.
2	1/5/29	Two miles from cropping-area	Vegetation, few clover-leaves and rush seeds.
2	10/5/29	Berwick	Macerated vegetation and large number of rush-seeds.
2	13/6/29	At Lake Waipori	Macerated vegetation and rushes; also rush-seeds.
2	11/6/29	From vicinity of cropping-area	Macerated vegetation only.
2	6/7/29	Near cropping-area	Macerated vegetation and oats.
2	5/8/29	From cropping-area	(*a*) Macerated vegetation and crop half-full of wheat; (*b*) macerated vegetation and one barley-grain.
1	6/7/29	Waipori	Macerated swamp vegetation and rush-seeds.
2	16/8/29	„	Macerated black-swamp vegetation.
		SOUTHLAND	
4	Dec. and Jan.	From vicinity of cultivated land	Macerated vegetation (grass).
2	Ditto	Shot in oat-paddock	No oats found; stalks and heads of weeds and other vegetation.
2	Ditto	Twenty-five chains from nearest crop	Macerated vegetation (mostly marsh-foxtail); *Alopecurus geniculatus*.
2	18/4/29	From cultivated areas on plains	Macerated vegetation (grass) and oat-seeds.
2	14/5/29	„ „ „ „	Macerated vegetation (grass).
2	25/6/29	Taken beside an oat-stack	Macerated vegetation; oat and rush seeds.
2	25/6/29	From swamp, half a mile from cultivation	Macerated vegetation; oat and toad-rush seeds.
		NORTH CANTERBURY	
2	23/4/29	Alleged to be causing damage to stacks	Macerated vegetation (grass); few clover-leaves.
2	20/7/29	„ „ „ „	Macerated grass and other vegetation.

The Bad Shot Wants an EASY Victim

Millions That Never Live.

NATURE NEVER STANDS STILL.

(By Capt. E. V. Sanderson)

Dead Trees, Tarawera, and New Growth.

It can safely be assumed that all the trees—nay, all the plant-growth in a natural forest—are growing under the correct environment, so far as climatic, light and soil conditions, and their relationship to their neighbours forming the forest community is concerned because they are the survivors after intense competition.

Now how does nature go about planting growth according to the needs of each particular plant? Billions of seeds are broadcast by various means, the wind, birds, water, etc., etc. Millions upon millions fail to lodge in places suited to their needs. Most never germinate and those that do, have to assert their suitability and vigour in the mighty contest for a place in the sun as it were. Even those that may assume a temporary supremacy have to shew their suitability in the course of their life to resist weather conditions, disease, and such like; otherwise they fail and are replaced by more able contestants.

Some of the world's most able foresters admit that they do not always know for certain exactly what to plant, even in those districts in which they are practicing. The problem is further accentuated by the fact that there are vigorous trees and weak trees of the same species, just as there are strong men and weak men.

Faced with all these problems, the more eminent of foresters usually pin their faith on the trees which are native to the locality in which they are operating, because those trees have proved to be the successful survivors to date, after ages upon ages of contest. Further, Nature never stands still or is content to have reached a final goal at any period, but as thousands upon thousands of years roll by, she modifies and gradually changes the flora so as to comply with the ruling climatic and soil conditions.

Faced with all these problems, the person who wishes to establish a native plantation will fortify his chances of success if he sticks to that plant-life which grew in his particular locality when the white man first set foot in this land. He will moreover, still further strengthen his likelihood of success if he carefully and accurately notes the aspect, soil and climatic and light conditions under which each species he wishes to grow, is thriving naturally, and endeavour to supply similar condtions for those plants which he wishes to utilize.

A tree is not a fencing post, but a real living thing. Planted under the wrong conditions it may grow, but will not thrive. It is usual in such cases to blame the plant as slow, or no good, when the real onus for its failure is with the person who put it there.

* * * * *

Feed the Birds this Winter.

Winter is a deciding factor in the preservation of birds. Well-fed birds can care for themselves against enemies. Although August is the first month of Spring and berries have been plentifully produced this season, August is the month when the food supplies are shortest.

More food trees planted, more food given, more shelter provided—means more birds. More birds means more assistance against the huge invisible army of insects.

What food shall we give them? Many species of birds take fat freely and beef suet is especially acceptable. Many like potato or sweetened porridge and milk, and bell birds and tuis are included. Bird lovers should place food out of the reach of cats.

Feed the birds, especially in August.

The Bright-eyed Tomtit.

Gardens for Songsters—Cages for Criminals!

How Gardeners May Be Hosts Of Sweet-Singing Guests.

A new spirit is slowly but surely taking possession of people. There has been a change from a passive possession of an area of land about a house for lawns and shrubs and flowers, to a positive and an active desire to do all possible to attract into gardens colonies of songsters and feathered friends.

The cage idea must be combated throughout the land. It is being realised that liberty is a precious thing, that life is colourless without its joy and its beauty. There is no beauty about a cage but a veritable misery about prisoners enclosed in cages.

Gardens are opportunities—opportunities for education, for inspiration, for enjoyment. Their contents of shrubs and trees may be arranged so that birds shall be guests at liberty and the gardeners hosts. Erection of bird baths in such positions that stray cats shall prowl in vain, and the distribution of food are other means adopted. The Forest and Bird Protection Society can supply particulars of the best way to make one's garden a happy hunting and singing ground for birds. There are many trees and shrubs that are suitable for winter food purposes. Among them may be mentioned ngutukaka, puriri and the exotic tree lucerne.

Another typical New Zealand plant which might be used more in gardens is the common cabbage tree. Highly ornamental at all stages of growth Cordyline Australis is a splendid bird shelter and food plant. In a town garden the boundary is the best place to plant it. The young plant may be placed in the same row as other native hedge plants such as taupata coprosma retusa (Baueri), also a good berry yielder—in the certain knowledge that the cabbage tree will hold its own and ultimately overtop the hedge, producing a straight trunk eight to twenty feet high.

The tree is quite at home in a windy exposed situation, the leaves clattering together in high winds, only a few being shed in gales. In some seasons, like the present one, the flowers are abundantly produced containing nectar for the honey-eating birds, these flowers being followed by an abundance of white berries greedily eaten by fruit-eating birds.

Starlings and White-eyes seem to be particularly fond of the fruit. The dead and much-branched stalks form a twiggy mass which persistently remains attached to the tree. The nectar brings insects around and these attract fantails which may often be seen hawking flying insects.

The cabbage-tree is easily raised. The innumerable seeds germinate readily if the berries are gently crushed, mixed with sand, and kept moist in a seed pan. The trunk sprouts if buried in damp earth. One way of securing vigorous plants is to bury an old cabbage-tree trunk horizontally. It will soon sprout along the length of the trunk, which may then be cut in sections and replanted. Sprouts will readily grow. It has been stated that chips will sprout if they lodge in a suitable damp spot.

Many fence lines in Wellington at present are a sight owing to the white berries. Any bird lover could not do better than experiment in raising the abundant seed this year.

Photo courtesy Edgar F. Stead.
An Albino Tui.

The Life and Family Affairs of the White-Fronted Tern.

A SMALL FISH IS FIRST OFFERING OF LOVE.

(By R. A. Falla)

"SEA-SWALLOW" is a popular name throughout the world for birds of the tern family. Although closely related to gulls, terns are of more slender build, with long sharp beaks, long pointed wings, small feet and swallow shaped tails. The most plentiful kind in New Zealand seas is the white-fronted tern, so called because its "front," or patch of forehead feathers just above the beak, is white. A splendid picture appears on the cover. It is found in coastal waters from the Auckland Islands in the south to the Bay of Islands in the north, and also occurs less commonly along the south coast of Australia.

The largest flocks and greatest number of nesting colonies are to be seen in the Hauraki Gulf. Here they are well known to sailors and fishermen as "kahawai" birds because of their habit of congregating in the air in a dense noisy flock wherever the surface is broken by shoals of small fish pursued by the larger kahawai. Under these conditions terns find fishing easy, but they are good divers and able to catch such small fish as pilchard and anchovy even without the help of the kahawai.

The birds begin to make preparations for nesting late in September and for some weeks about this time flocks of them seem to be engaged in examining likely nesting sites. When these are eventually chosen, they may occupy a variety of situations. Narrow rock ledges, shell banks, sandy beaches, cliff ledges, piles of drift wood, or even the decks of old barges and hulks are among the home sites likely to be chosen.

Love Making Preliminary.

Among the preliminaries of courtship the presentation by the male bird to the female of small fish is an elaborate and pretty ceremony. When laying commences, most birds are satisfied with one egg although two and very rarely three may be found. Incubation is shared by both sexes and lasts about three weeks. The egg shown in the cover picture is of average shape and colour, but a great range of colour is to be found, from pale blue without spots to very dark brown with heavy blotches. Hardly any two specimens are exactly alike.

There is a similar variation in the colour of the chicks which are clothed in soft down, sometimes buff or fawn or grey with mottled and spotted pattern about the head. These young birds are alert and active and always ready to receive the fish brought in by their parents and to swallow them with lightning rapidity. They grow rapidly and become more and more daring in their excursions from the nest. Sometimes indeed they are washed off the island or sand bank altogether and only get back again by swimming strongly, encouraged by their excited parents. The plumage that succeeds the down is somewhat similar to that of the adult but differs in being spotted on the back.

Winter Spent at Sea?

These terns appear to spend the winter months at sea and enormous flocks of them have regular resting places on off-shore islands or along deserted ocean beaches. When Spring comes again they return to their favourite nesting places, although it has been noticed that they rarely return to exactly the same site in two succeeding years. It appears that they do, however, return to an original site in alternate years and it may be that this habit ensures that the site is perfectly clean and free from vermin after being deserted for so long.

The extreme abundance of this species and the habit noticed in recent years of colonies choosing a nesting site quite close to busy beaches and public thoroughfares, should recommend them to our interest and protection.

* * * * *

Our cover picture is a faithful reproduction of the first of a series of sea bird pictures painted for us by Miss L. A. Daff, under the supervision of the authorities of the Auckland War Memorial Museum.

The Muddiest Rivers are Carrying to the Sea the Cream of New Zealand's Soil.

A SAMPLE FROM 55 FATHOMS, 30 MILES FROM LAND . . .

"Full many a gem of purest ray serene
The dark unfathomed caves of ocean bear . ."

THE bottom of Cook Strait must contain many thousands of tons of precious soil—the cream of fertility—that once nourished the roots of New Zealand's primeval forest. It is easy to demonstrate that there has been a tremendous increase in the rate of deposit from the land in the past 85 years compared with the centuries previous to that. Study of the map of the State Forest Service (reproduced in this issue of "Forest and Bird") showing the areas of bush remaining, must indicate that. Wherever it rains and the water gathers and rushes over higher lands and steeper faces denuded of trees and shrubs and ferns and mosses, wherever these waters join larger issues and meet rivers that flow seawards, great soil losses occur.

The sea swallows the cream of New Zealand's soil borne to it in suspension by rivers and streams—sacrifices to the carelessness of New Zealanders.

When one sees yellow rivers and stained estuaries one may conclude that there goes fertility—some of the cream of New Zealand's soil.

Dr. P. Marshall is one man of hundreds of thousands. He keeps in touch with realities. As geologist of the Public Works Department he acts as a kind of double-entry book-keeper, auditor and inspector, of the basic public wealth—the greatest wealth, the basic wealth. He records as many as he can of the diverse transactions of nature concerned with rocks and soils and physical forces. It is a huge business this physical geography, this geology, this geological accountancy.

One of Dr. Marshall's many tasks has been to find out what lies at the bottom of the sea about New Zealand's coasts. From time to time as the Government steamer Matai cruises around New Zealand waters, a line is lowered and samples are dredged from the bottom of the sea. The samples look quite like the contents of a child's bucket filled from the grey sea-beach. But that is not enough for Dr. Marshall.

"That comes from 55 fathoms deep, south of Cook Strait, 30 miles from land," said the geologist, pointing to a mass of grey mud in a corner of his laboratory in Wellington. It was a sample dredging.

"When you sift it out, you find this," he continued. He exhibited a tin filled with fragments of marine shells. Some were exquisitely marked and minute and delicate —a diversified collection of deep-sea relics. On the floor were piled dozens of small sieves with meshes ranging in size from half an inch to one hundredth of an inch.

The work entailed in analysing a heap of grey mud and pursuing its granular composition to the finest grade is long and wearying physically and mentally.

The very finest of the sea-bottom dredgings that pass through the smallest mesh form a small fraction of the total. Often he proceeds to classify the particles below the one-hundredth-of-an-inch size. That is done by suspension tests, placing the matter in water. Some falls to the bottom readily. Some lingers. The fine material, Dr. Marshall explained, is nothing but "land," ground to dust from rocks in ages past, absorbed by vegetation or by the chemistry of plant life, formed by decayed vegetation into humus or silt, the cream of the soil, ground to fineness by physical action, and borne to the sea-bottom by rains, and winds, and rivers.

In dozens of phials are contained the results of the sifting. Some shells are so fine that only meshes one fiftieth of an inch prevent them passing through. Most of the fine shells are of this minute kind. The information so obtained is of definite value to humanity.

The land is being washed into the sea in the eternal cycle of clouds and winds, rivers and rains. The answer surely is—

Save the bush, increase it and multiply Nature's guard against loss of top soil.

BIRD-NESTING A PERNICIOUS PRACTICE.

National and Educational Import Outlined.

The evils in the train of bird-nesting and egg-collecting should be emphasised in the homes by parents and in the schools by teachers.

The matter on this page is reproduced from the annual report of the Scottish Society for the Protection of Wild Birds. Every word of it is applicable to New Zealand.

Nest Robbing.

We treat too lightly the practice of nest robbing. It is an injury to the bird, to the nest robber and to the nation. This evil practice affects our resident birds and also migrants who come in Springtime. They, as well as our resident birds, add incalculably to the charm of the countryside, give immense joy and delight to thousands of people, and contribute services of inestimable benefit to the agriculturist, the fruit grower and the arboriculturist.

Egg Stealing and the Bird.

Let us think what this means to the bird. The climax of its year's existence is to mate, to select its nesting place, to carry and weave its nest, deposit its eggs, incubate, to hatch its young, and thus to add fresh elements of beauty and service to our country. In the course of its going through this wonderful experience, its eggs are stolen, and its nest destroyed. The cruelty and brutality of it is unthinkable.

The bird is the most constantly active of all creatures to whom swift movement is of the essence of its life. Great must be the overmastering power of this impulse, which compels it to remain on its nest for days, and even weeks, on end, still and motionless as a stone, conquering its normal impulse for movement! What must it mean to a creature of this kind, to find its labour in vain and this all-powerful urge thwarted?

Its long migration, its mating and nest building, have all been leading up to this great climax which has been frustrated. The pain and suffering involved must be intense. It is all the more intense that the cruelty is not physical, but psychical. The whole scheme of this beautiful creature's life is meantime, for it, destroyed. The suffering of the bird in this cycle of its life is comparable to the suffering of a human being who sees his life work destroyed.

What this means to the Culprit.

It not only inflicts cruelty on the bird; it injures the boy or youth or egg collector who engages in it. Such actions are only possible by inhibiting and restraining the operation of the mind and of the imagination. It prevents the expansion of the mind in many beautiful directions. The destroyer, in thus inflicting pain, further develops in himself a hardness of heart and an unresponsiveness of feeling which automatically shuts him out from purer and finer pleasures. He has also destroyed a thing of beauty which he cannot replace. Thoughtlessness concerning the suffering of living creatures is a step towards degradation, and sows the seed of brutality in the character.

Egg Collecting.

Most of those bird lovers and ornithologists who have in their boyhood "collected" eggs agree that their real interest in bird life did not commence until they had entirely given up the idea of collecting. This is so, because these two interests are incompatible. Egg collecting, indeed, is more responsible than anything else for diverting the mind at a critical period into wrong channels and preventing the development in the boy of a real and living love of bird life and of Nature.

The Nation's Loss.

It is likewise an injustice to the nation, as it deprives the countryside of an essential element of beauty. It prevents thousands from enjoying the sight and sound of the bird. It prevents that increase of bird life in our country which would make it a place of still greater interest and pleasure for all. It deprives the agriculturist, the fruit grower, and the forester of the services of valuable allies whose activities are of immense benefit to the economic life of the nation.

Parliamentarians, educators and parents must take a stand and stop this pernicious practice.

BEHOLD, THE FORESTS VANISH!

THIS CONCERNS EVERY CITIZEN.

The story of less than 100 years destruction by fire, axe, slip, flood, molestation, foraging and denudation is told with tragic plainness for anyone who studies this map, prepared by the State Forestry Service in 1929. The black portions represent the remaining native bush in New Zealand. Much even of this, to quote the State Foresters, is incapable of regeneration. This is our Heritage—or what remains of it. Saw milling and other activities since 1929 have resulted in a heavy reduction of the areas shown in this map.

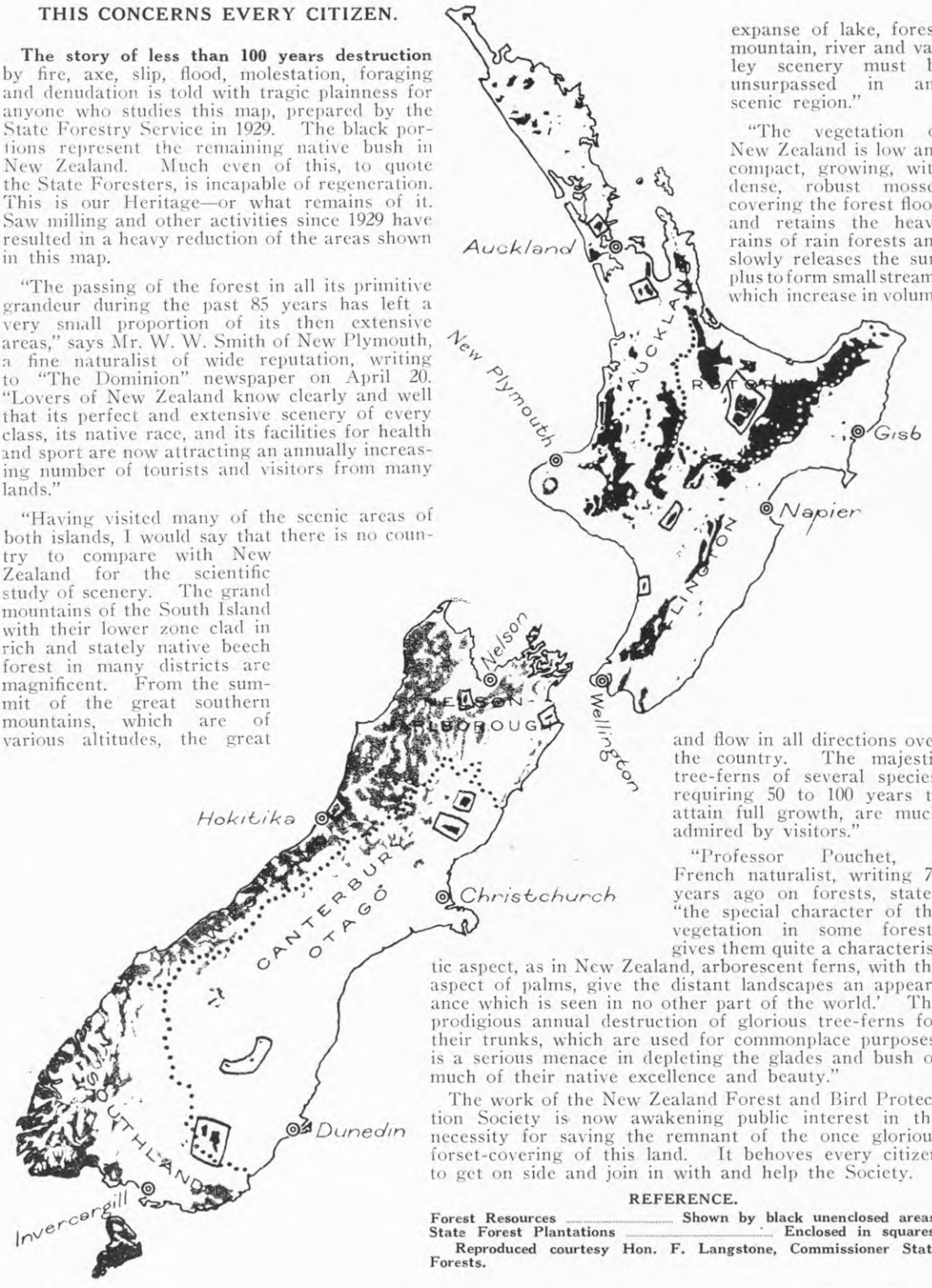
"The passing of the forest in all its primitive grandeur during the past 85 years has left a very small proportion of its then extensive areas," says Mr. W. W. Smith of New Plymouth, a fine naturalist of wide reputation, writing to "The Dominion" newspaper on April 20. "Lovers of New Zealand know clearly and well that its perfect and extensive scenery of every class, its native race, and its facilities for health and sport are now attracting an annually increasing number of tourists and visitors from many lands."

"Having visited many of the scenic areas of both islands, I would say that there is no country to compare with New Zealand for the scientific study of scenery. The grand mountains of the South Island with their lower zone clad in rich and stately native beech forest in many districts are magnificent. From the summit of the great southern mountains, which are of various altitudes, the great expanse of lake, forest, mountain, river and valley scenery must be unsurpassed in any scenic region."

"The vegetation of New Zealand is low and compact, growing, with dense, robust mosses covering the forest floor, and retains the heavy rains of rain forests and slowly releases the surplus to form small streams which increase in volume and flow in all directions over the country. The majestic tree-ferns of several species, requiring 50 to 100 years to attain full growth, are much admired by visitors."

"Professor Pouchet, a French naturalist, writing 70 years ago on forests, stated "the special character of the vegetation in some forests gives them quite a characteristic aspect, as in New Zealand, arborescent ferns, with the aspect of palms, give the distant landscapes an appearance which is seen in no other part of the world.' The prodigious annual destruction of glorious tree-ferns for their trunks, which are used for commonplace purposes, is a serious menace in depleting the glades and bush of much of their native excellence and beauty."

The work of the New Zealand Forest and Bird Protection Society is now awakening public interest in the necessity for saving the remnant of the once glorious forset-covering of this land. It behoves every citizen to get on side and join in with and help the Society.



REFERENCE.

Forest Resources ..... Shown by black unenclosed areas.
State Forest Plantations ..... Enclosed in squares.

Reproduced courtesy Hon. F. Langstone, Commissioner State Forests.

Fast Growth of New Zealand Timber-Trees.

(By the late Sir David Hutchins.)

Forestry in New Zealand has been misjudged by the entirely erroneous idea that the New Zealand native timber-trees grow more slowly than ordinary timber-trees of other countries. I find that most of the timber-trees of New Zealand grow faster than the timber-trees of Europe and America—rimu and kauri, the two chief timbers, decidedly faster.

According to published returns, New Zealand timber-trees grow some 50 per cent. faster than two of the chief native timber-trees of South Africa. Nearly all the American timbers grow rather slower than kauri and rimu, some much slower.

The mistake regarding the growth of New Zealand trees has arisen from two causes—(1) Comparing trees such as kauri, rimu, and totara, of the dense evergreen forest, which generally grow badly out of the forest, with certain quick-growing exotics—*Insignis* pine, eucalyptus, and wattles—of the open forest, which grow well in the open, and which have been picked for rapid growth in countries with much larger forest floras than that of New Zealand.

(2) It has been assumed that the profitable cutting-maturity of New Zealand trees is that at which they are now felled. In the Forest Commission's Report of 1913 is given a cross-section of a totara tree 8 ft. in diameter, and a diagram showing that, from a computation of the rings, it is 416 years old. The conclusion intended to be drawn is that it takes 416 years for a totara to mature.

This is very misleading. Thus the Californian redwood in virgin forest lives from 1,300 to 1,750 years; but the most profitable cutting-age is fifty to eigthy years. Douglas fir lives 450 to 750 years in virgin forest, while in English plantations it is cut at forty years.

Tranquility.

Appeal for Bequests

Is there any cause more worthy of bequests by public-spirited citizens, than the objectives of the Forest and Bird Protection Society, which is working wholly and solely for the welfare of New Zealand? Here is a suggested form of bequest:—

"I give and bequeath the sum of .....to the Forest and Bird Protection Society (Incorporated) and I declare that the receipt of the Treasurer for the time being of the said Society shall be a complete discharge to my executors for the legacy hereby given to such Society."

The record of the Society, the personnel of its membership and Executive are a good guarantee that the best possible use will be made of such bequests.

Call for Sanctuaries

The Society would also welcome the responsibility of administering suitable sanctuaries for land or sea birds, provided that a small annuity is added for the payment of a caretaker. Such sanctuaries could be named after the donor, and would thus be a perpetuation of his name as a saviour of New Zealand's forest and bird life. It is suggested that such sanctuaries should be administered in a manner to ensure their return to the original natural conditions as nearly as possible; to prevent the destruction of native carnivora, except upon the recommendation of recognized authorities on wild life conservation; to eliminate all exotics to the utmost extent.

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FOREST AND BIRD PROTECTION SOCIETY

OF NEW ZEALAND (Inc.)

Invites all those who have respect for our wonderful and unique native forests and birds, all those who realize the great economic and aesthetic value of birds, all those who wish to preserve our unrivalled scenic beauties, to band together with the Society in an earnest endeavour to stimulate public interest and secure efficient preservation, conservation and intelligent utilization of our great heritage.

With the co-operation, appreciation and assistance of the general public New Zealand can stand unrivalled. Without such help our forests will be hopelessly marred and destroyed by fire, animals, and wasteful exploitation.

The subscriptions are:—Life members £5, Endowment members £1 per annum; ordinary subscription, adults 5/-, children 1/-. Endowment members comprise those who desire to contribute in a more helpful manner towards the preservation of our birds and forests. Besides this, we ask for your co-operation in assisting to conserve your own heritage. Is it not worth while?

We aim at issuing only accurate information, all of which is checked by leading authorities. No remuneration is asked by any of our executive. Your contribution goes solely towards better informing others.

OBJECTS—To advocate and obtain the efficient protection and preservation of our native forests and birds, enlisting the natural sympathy of our young, unity of control of all wild life, and the preservation of sanctuaries, scenic reserves, etc., in their native state.

Affiliated with the Society for the Preservation of the Fauna of the British Empire (of which King Edward VIII is Patron) and with the International Committee for the Protection of Wild Birds.

Recognising that it is essential for all those who desire to save our Forest and Bird Life to band together, I enclose herewith my subscription of £..... as a subscriber to the Society. I shall be glad to receive the quarterly magazine, "Forest and Bird," without further charge.

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