SEABIRDS FOUND DEAD IN NEW ZEALAND IN 1975

By C. R. VEITCH

ABSTRACT

During 1975, 3681 kilometres of coast were patrolled by 163 members of the Ornithological Society of New Zealand and their friends: 21 425 dead seabirds and 192 non sea birds were found. Four wrecks contributed to this total. In February there was a wreck mainly of Fairy Prions (Pachyptila turtur) on Wellington West beaches. From late June to September there was a wreck of Diving Petrels (Pelecanoides urinatrix) and Prions (except Pachyptila vittata) with high numbers of six other species. In late August and September there were extra numbers of Antarctic Fulmars (Fulmarus glacialoides) and Kerguelen Petrels (Pterodroma brevirostris) with an increase in numbers of some other species. During October-November there was a record wreck of Sooty Shearwaters (Puffinus griseus) on west coast beaches.

INTRODUCTION

This paper records the results of the Ornithological Society of New Zealand's Beach Patrol Scheme for 1975. The coastline of New Zealand is divided into 15 sections (Imber & Boeson 1969) with an additional grouping of "OI" for outlying islands which this year includes patrols from the Chatham Islands. This year there were patrols on all sections of coast except Wairarapa and Fiordland. 575 Beach Patrol Cards and 61 Specimen Record Cards were filed.

Nomenclature follows the *Annotated Checklist* (OSNZ 1970), except that in some instances it is not possible for patrollers to identify birds to a subspecific level. Some trinomials have not been used in the tables to save space.

RESULTS AND DISCUSSION

The numbers of birds found and kilometres of beach travelled and covered per month and per coast are recorded in Table 1. Kilometres covered are the lengths of coast covered monthly; kilometres travelled (Table 1) are the total lengths of coast patrolled. Hence, if one kilometre of beach is patrolled three times in one month, then three kilometres have been travelled but only one kilometre covered.

The total distance travelled (4582 kilometres) is a 25% increase on the previous longest distance travelled (1974) and the total number of birds found (21 425) is a threefold increase on most previous years

NOTORNIS 24: 41-49 (1977)

TABLE 1 - NUMBERS OF DEAD SEABIRDS RECORDED AND KILOMETRES PATROLLED ON EACH COAST IN 1975

COAST	CODE						HUNOM	Ξ.							TOTALS.		1
			JAN	FEB	MAR	APR	MAY	NUL	TOL	AUG	SEP	OCT	NOV	DEC	METRES BIRDS		BLRDS /KM
LUCKLAND WEST	ΑM	KM BIRDS	38	122 348	7.3	. 39 18	44 128	190	314 6859	206 1160	243 1560	229	137	297	1932	15676	8.1
TARANAKI	€	KM BIRDS	t I	441	31	1 1	2.	24	62 950	30	39	23	35		231	1274	
WELLINGTON WEST	WW	KM	ac ac	56 1063	30	2.6	21	9† 94	557	190	80 417	11	70 4	1.1	368	2469	6.7
WESTLAND	M.D	ROM	1.1	13	1 1	1-1	11	1.1	1 1	1 1	7.	1.1		5.1	69	15	***
AUCKLAND EAST	AE	KM	44 109	34	19 76	75.5	26 14	23	35	68 65	33	94	6.81 81	20	384	5,18	-7.
HAY OF PLENTY	пр	KM	÷ 50	0 10	¢1 O	5 ~	9 51	4 0	01 65	€ -	C1 -	22	αс	0.8	70	59	8.0
DAST COAST NORTH IS	EC	KM	1-1	1-2	1 1	1 1	16 81	3	≈ =	1.1	1.1	7 9	4 IV	1.1	39	47	5:
CANTERBURY NORTH	S.	KN HIRDS	-0	7 23	:0 O	1 1	1 1	9 -	9.7		20	9 0t	9.5	96	50	59	1.2
CANTERBURY SOUTH	cs CS	KM BTRDS	₽\ ²	36	36 67	5.50	25	7.5	20	12	ဖေ	99	'nω	7 2 1	113	259	2.3
orago	o	KM BTRDS	3 6	C1 2	υ.Ε	1.1	ci –	1 1	61 -	1 1	1 1	1 1	15 62	.∓ ÷	25	45	8.
SOUTHLAND	us.	KM	1.1	ing	७७	7.2	10.0	inc	ē <u>0</u>	aξ	∿-	n m	אין אין		53	62	·
WELLINGTON SOUTH	N.S	KM BTRDS	33	£,	£ 9	16	77	88	430	4.7	18	31	85.0	26 18	280	755	7
NORTH COAST SOUTH IS	NS	KM RTRDS	30 %	e9	9 61	et -2	24	w iv	IU 177	6.3	30	£ 5	E G	t-9	55	134	2.3
OFTLYTRG ISLANDS	To	KM BTRDS	٥Ü	1.1	1.1	1.4	1.1	1.1) i	1.1	1.1	1.1	1.1	* 1	6	13	1.4
TOTAL KM TRAVELLED (NOT LISTED ABOVE)			160	283	257	17.8	177	904	742	479	579	450	266	455	4582		
TOTAL KILONETRES COVERED TOTAL HIRDS RECORDED			145	265 1657	215	133	155	352	559	411	472 2169	321	223	430	3681	21425	
нтврѕ/км соубавр/мохтн			2.2	6.3	1.3	1.3	7.5	2,1	15.8	3.9	9.4	9.8	7.0	9.6			90

No patrols were recorded for Wairarapa and Flordland coasts

although less than the 1974 record of 24 747. The average number of birds found per kilometre covered (5.8) is more than twice the average of 2.34 for the years 1960 to 1974.

This year the usual pattern of lowest mortality in late summer and autumn and higher mortality in late winter and spring has been obscured by a wreck in February and a series of wrecks almost continuously from late June to November.

In February there was a small increase in numbers of Sooty Shearwaters (Puffinus griseus) and Fluttering Shearwaters (P. gavia) and a considerable increase in numbers of Fairy Prions (Pachyptila turtur) found dead. This Fairy Prion wreck was most noticeable on Wellington West beaches (15.7 birds/km covered) where they were recorded as being mainly juveniles. Gale force south west winds were recorded during the first week of February.

The major wreck of the year spread from late June to September with a peak in July. Weather during this period was varied. Iune there were numerous depressions down to 970 mb south of Campbell Island and throughout June and the first three weeks of July there were more west and south west winds than usual blowing onto New Zealand. Diving Petrels (Pelecanoides urinatrix) were the most abundant single species found during July (3 155 birds, 36% of the monthly total) mainly on Auckland West, Taranaki, Wellington West and Wellington South coasts with highest densities on the Taranaki coast (12.8 birds/km covered). This is the first time that a wreck of Diving Petrels has been recorded (234 birds in 1973 being previous highest). Fairy Prions were almost as abundant with a total of 3 075 birds during July mainly on Auckland West (9.2) birds/km covered) with lesser numbers on Taranaki, Wellington West Wellington South beaches. Other Prion species Pachyptila vittata) were also more numerous than usual during July and there were extra numbers of Blue Penguins (Eudyptula minor), Grey-headed Mollymawks (Diomedea chrysostoma), Giant Petrels (Macronectes giganteus), Cape Pigeons (Daption capensis), Blue Petrels (Halobaena caerulea) and Fluttering Shearwaters (Puffinus gavia). These species all continued to be found in higher numbers than usual throughout August and into September.

In late August and September the weather reports show further deep depressions, down to 955 mb, south of Campbell Island. These were followed by a period of west and south west winds. This brought to New Zealand a numerically moderate, but ornithologically interesting, wreck of Antarctic Fulmars (Fulmarus glacialoides) and Kerguelen Petrels (Pterodroma brevirostris) and an increase in numbers of Greyheaded Mollymawks and Blue Petrels to higher levels than during the July wreck. White-headed Petrels (Pterodroma lessoni) were also more frequently found during September but did not reach a peak until October (114 birds). Nearly all these birds were found on west

TABLE 2 - SEABIRDS OF WHICH 1 to 5 SPECIMENS WERE FOUND DEAD IN 1975.

COAST AND MONTH OF DISCOVERY GIVEN

SPECIES OR SUBSPECIES	NUMBER FOUND	COAST(S)	MONTH(S)				
Eudyptes pachyrhynchus pachyrhynchus	2	WD(2),	DEC(2)				
sclateri	2	cs,).	MAR, AUG.				
Diomedea cauta salvini	5	AW(3), ws, or.	JAN, FEB, SEP(2), OCT.				
Thalassoica antarctica	3	WW(2), AE _	FEB, SEP(2)				
Pterodroma spp*	2	AW(2),	JUN(2)				
pycrofti	2	AE(2)	JAN(2),				
leucoptera	1	AW	JUN				
hypoleuca nigripennis	2	AW(2)	FEB, DEC.				
Procellaria spp*	1	NS	JUL.				
cinerea	3	AW(3)	SEP, NOV, DEC.				
Fregetta tropica	1	WW	JUN				
Phalacrocorax spp*	1	A₩	OCT				
melanoleucos	5	AE,EC,O,WS(2)	JAN, JUN, AUG, SEP, OCT.				
Leucocarbo carunculatus chalconotus	3	s(3).	APR(2), AUG				
Stercorarius skua lonnbergi	1	AW	m JUL				
parasiticus	1	AW	FEB				
Larus spp*	1	AW	NOV				
Sterna paradisaea	1	or	JAN				
albifrons sinensis	1	CS	OCT				
ATOT	, 38						

^{*}Species could not be identified by patroller

TABLE 3 - COASTAL DISTRIBUTION OF THE MORE COMMON SEABIRDS FOUND DEAD IN 1975

SPECIES OR SUBSPECIES					C	OAST	P.C			•					TOTAL BIRD
30031 20123	AW	т	WW	WD	AE C	OASTP	EC	CN_	cs	0	S	WS	NS	OI	TOTAL BIRL
Megadyptes antipodes	-		1	-	. =	-	-	-	-	7	-	-	-	-	8
Eudyptula minor	831	78	83	1	106	4	10		3	3	2	26	6	2	1161
albosignata	-	-	1	-	-	-	_	6	29	-	-	-	-	-	36
Diomedea spp*	19	3	7	-	1	-	-	-	-	-	~	2	-	-	32
exulans	27	_	1	-	1	-	-	1	-	-	-	3	-	-	33
epomophora	2	-	-	-	-	-	1	-	1	-	_	3	_	_	7
melanophris	18	-	-	-	1	-	-	-	_	-	-	-	-	-	19
chrysostoma	110	1	6	-	2	-	-	-	1	-	1	2	1		124
bulleri	9	1	1	-	-	_	-	· 1	-	~	-	1	-	-	13
cauta*	22	-	2	_	_	-	2	_	_	-	-	_	-	-	26
cauta	23	2	3	_	_	→	· -	_	2		-	3	1	_	34
Phoebetria palpebrata	31	1	_	-	_	-	-	~	_	_	_	3	_	1	36
Macronectes giganteus	106	4	14	-	7	-	_	-	1	1	4	5	1		133
Fulmarus glacialoides	561	21	46	2	_	_	3	3	-	_	1	1	1	_	639
Daption capensis	250	15	19	_	4	1	í	1	2	_	_	13		_	306
Pterodroma macroptera	80	1	-	_	10				~	_	1	'í	_	_	93
lessoni	249	10	11	_	2	_	2	_	_	_	i		3		278
inexpectata	27			_	_	1	~	_				-	,		29
brevirostris	133	2	21	3	1			_	_		-	4		-	162
cooki	לכו 0	-	~ 1		13		-	-	-	-	-		•	-	
Halobaena caerulea	63	8	6	_	10	1	-	-	_	-	-	-	-	-	23 89
Pachyptila spp*	819		452	-	2		-	ī	-	1	6	1	2	-	
vittata	33	17	7	-		-	-	1	2			23	22	-	1325
vittata salvini	.194	1,	22	-	-	-	-	-	2	2	1	2	_	-	48
		6	21	-	-	-	-	-	1	-	1	9	-	-	231
desolata	718 411		28	-	-	-	3	-	2	-	1	,	-	-	752
belcheri		11		-	. 1	-	ī.		-	-	3	. 1	. .	7	455
turtur	3767	47	1 10 1	10	16	1	4	16	1	-	8	113	30	4	5118
Procellaria parkinsoni	2	_	1	-	2	_	-	-	-	-	-	-	1	-	6
westlandica	2	1	_	-	-		-	-	~	-	-	5	-	_	8
acquinoctialis	6	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Puffinus spp*	6	1	3	-	-	-	-	-	-	-	-	-	-	-	10
carneipes	21		-	-	53	2	-	-	-	-	-	2	-	-	79
bulleri	170	4	. 24	-	29	1	1	1	24	-	-	3	-	-	217
griseus	3465	49	40	2	22	9	10	5	21	-	6	32	4	3	3668
tenuirostris	207	2	8	_	26	2	-	1	5	-	2	1	-	-	254
gavia	760	66	65	-	93	3	3	1	4	-	_	54	8	-	1057
huttoni	19	_	2	_	_	-	_	6	7	-	-	-	-	~	34
assimilis	61	-	-	-	3	1	2	_	-	_	_	_	-	1	68
elagodroma marina	9	_	_	_	\bar{l}_{k}	7	-	_	_		_	1	_	_	22
elecanoides urinatrix	1981	839	409	1	33	6	2	-	_	_	3	307	_	_	3580
Sula bassana	232	i ₄	12	_	42	2	1	3	-	-	í	4	2	_	303
halacrocorax carbo	3	2	1	1	_	_		_		_		1	_	_	8
varius	ŭ	_	i	i	2	3	_	_	_	_	1		_	_	12
Stictocarbo punctatus	3/1	36		;	ĩ			4	125	18	10	- 1	10	_	204
arus dominicanus	114	32	51	i	7	3	2	7	22	4	4	82	49	-	382
novachollandiae	9	<i>-</i>	12		28	10	~	ź	12	2	4	41	7	_	
bulleri	9	-	1 1	-	20	10	-				2	41	- 1	-	155
		-		-			-	-	3	5	2	-	-	-	11
lydroprogne caspia	11	7.	.1	-	1	-	-	-	6	-	-	7	2	-	15
terna striata	33	łş.	11		21	2						3			84
TOTALS	15661	1274	2466	23	544	59	46	59	257	43	59	752	133	11	21387

^{*} Species or subspecies could not be identified by patroller

TABLE 4 - MONTHLY DISTRIBUTION OF THE MORE COMMON SEABIRDS FOUND DEAD DURING 1975

SIRCIES OR SUDCEPCIES					MONTH								TOTAL BIRDS
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	ост	NOV	DEC	
Negadyptes antipodes	4	-	3	-		_ 1			-	66	_	_	8
Dudyptula minor	35	71	31	37	25	80	455	105	177		20	53	1161
albosignata	6	12	8	1	1	1	-	2	-	4	-	1	36
Diomedea spp*	-	3	-	1		· 1	2	6	4	9	-	6	32
exulans	-	5	- '	_	_	. 6	6	3	1	3	2	7	33
epomophora	-	-	_	_	1	1	-	_	_	-	1	. 3	7
melanophris	-	-	-	-		2	6	6	2	2	-	1	19
chrysostoma	1	_	-	_	1	1	16	11	52	34	4	4	124
bulleri	_	-	-	<u>-</u>	-	žį.	5	<u> </u>	14	-	_	-	13
cauta*	_	3	_	_	2	3	3	-3	2	1	3	6	26
cauta	_	2	3	1	_	5	5	2	7	6	3	-	34
Phoebetria palpebrata	1	2	_	_	_	6	8	14	5	8	-	2	36
Macronectes giganteus	_	3	3	3	_	9	49	21	23	8	6	8	133
Fulmarus glacialoides	_	ź	1			_		4	462	147	17	6	639
Daption capensis	_	3	_	_	1	4	127	3.9	32	86	7	. 9	306
Pterodroma macroptera	$\overline{l_4}$	22	_	1	3	12	12	6	7	5	8	13	• 93
lessoni		3	_	. 1	4	1.1	8	.5	43	114	33	56	278
inexpectata	1	8	_		1	1	_		2	1	´ŝ	12	29
brevirostris		-	_	_			1	1.3	140	7		1	162
ccetti	6	14	3	2	_	_			, -		6	2	23
Halobaena caerulea	V	-		-	_	1	13	1.4	46	-13	. 2	-	89
Pachyptila spp*	3	102	8	_	2	5.5	270	131	597	108	35	14	1325
vittata	ú	10%	2	_	_	22	21	-44	-6	9	. 2	. "	48
salvini		5	~	_	6	21	161.	22	9	Ú.	î	2	231
desolata	-	,	-	-	1	33	581	113	11	12	i		752
belcheri	1	1	-	1	'	9	260	166	15	1	i	_	455
	51	972	20	3	. 11	143	3075	491	183		50	42	5118
turtur	51		1	,		143	. 3013	491	10)	77	50	42	5116
Procellaria parkinsoni	-	-			3		_	1	- 1	- 1	1		8
westlandica	-	7	-	-		. 2	. 2	!		,	. '	. 1	6
aequinoctialis	-	4	-	-	· · ·	. 1	3	7	6	-	-		10
Puffinus spp*				Ξ.		,		-		1	-		
carneipes	15	25	11.	7	. 2	. 2	1		. 1		2 10	. 12 63	79
bulleri	16	23	6	?	5	. 2	1	2	12	31		~	2 17
griscus	20	70	19	14	56	40	16	2	3	1748	1104	. 586	3608
tenuirostris	23	22	-	3	30	53	1.	. 2		40	35	. 45	254
gavia	37	97	32	3.1	. 6	30	392	149	91	71	73	63	1057
hutkoni	24	14	2	1	-	-	1	-	1	. 1	17	. 3	34
assimilis	1	3	-	-	1	2	33	5	7	ž;	8	74	68
Pelagordroma marina	7	2	1	-	1	1		-	. 3	1	2	4	22
Pelccanoides urinatrix	23	15	1	_	-	83	3155 -	175	89	19	10	- 10	3580
Sula bassana	20	37	3	8	8	9	51 -	20	-51	35	34	· 27	303
Phalacrocorax carbo	-	-	_	-	-	-	5.	-2	-	-	-	٠ 1	8
varius	-	14	1	-	3	-	1 -	-2		-	-	· 1	12
Stictocarbo punctatus	22	30	23	42	39	12	7:	3	6	5	4	1.1	204
Larus dominicanus	17	63	46	14	7	34	57 -	43	46	34	10	11	382
novaehollandiae	11	15	20	9	. 9	26	22.	1-4	. 7	13	. 3	. 6	155
bulleri	5	- 12	2	ź		_	. 1	_		_	· · ·	1	11
Hydroprogne caspia	ล์	5	_	_	_	1	2	_	i 4	_	_	-	15
Sterna striata	4	13	24	7	1	6	5.	4	5	2	5	8	84
TOTALS	345	1653	274	166	230	717	8841	1595	2163	2731	1564	1110	21387

[.] Species or subspecies could not be identified by patroller

coast beaches, the majority on Auckland West. Three Antarctic Fulmars were found on East Coast N.I. and three on Canterbury North beaches and 10 Blue Petrels on Auckland East.

During the 15 years of beach patrol records prior to 1975 Antarctic Fulmars have been recorded during 7 years:— 1964, 1; 1965, 1; 1970, 16; 1971, 3; 1972, 5; 1973, 134; 1974, 19. The total for 1975 was 639. Kerguelen Petrel records show a similar pattern. This year's total for White-headed Petrels (278) is a threefold increase on the previous highest (1970, 99).

The last wreck of the year was of Sooty Shearwaters (*Puffinus griseus*) which occurred during October and November on west coast beaches. Sooty Shearwater wrecks have been a regular occurrence at this time of the year when the southward migration reaches New Zealand. This year's wreck was slightly earlier and considerably more numerous than in previous years (Fig. 1). In October the average for all of New Zealand of 5.4 birds per kilometre covered was some ten times higher than the previous highest in 1963. The November average of 4.9 was some two and a half times higher than that of the previous best in 1971.

This is the second year that Antarctic Petrels (Thalassoica antarctica) have been recorded in the Beach Patrol Scheme (2 birds in 1973). This year's records followed the periods of south west winds in February and August-September. It is the third time that the following species have been recorded:— Erect-crested Penguin (Eudyptes pachyrhynchus sclateri) (1963, 2; 1974, 2), Black-bellied Storm Petrel (Fregetta tropica) (1963, 1; 1968, 1), and Arctic Tern (Sterna paradisaea) (1963, 1; 1969, 1).

The one Eastern Little Tern (Sterna albifrons sinensis) found in Canterbury South in October is a new record for beach patrolling. This species is a regular summer migrant to New Zealand although it has only recently been recorded from areas south of the Firth of Thames (Falla, Sibson & Turbott 1970).

Miscellaneous birds recorded, but not considered to be seabirds, totalled 192. These were:— 24 Magpies (both subspecies), 19 Black Swans, 16 each of Blackbirds and Mallard Ducks, 15 Rock Pigeons, 13 Starlings, 12 Song Thrushes, 8 Kingfishers, 7 South Island Pied Oystercatchers, 6 House Sparrows, 5 each of Harriers and Pukekos, 4 Chaffinches, 3 each of Bar-tailed Godwits, Variable Oystercatchers, Pheasants, Tuis, Silver-eyes, Mynas, White-faced Herons and unidentified Passerines, 2 each of Paradise, Shoveller and Grey Ducks and Eastern Rosellas, and one each of Bellbird, Pipit, Goldfinch, Skylark, Canada Goose, Shinging Cuckoo, Californian Quail, N.Z. Dotterel and Morepork.



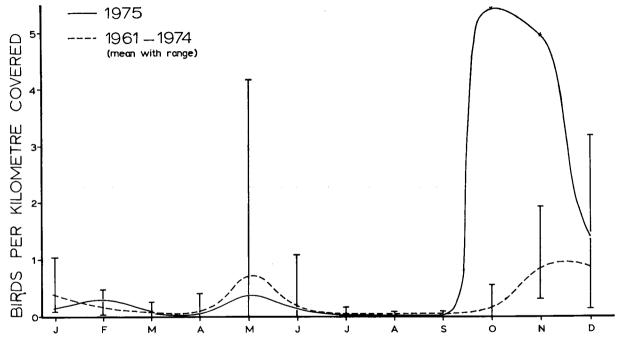


FIGURE 1. SOOTY SHEARWATERS FOUND DEAD ON NEW ZEALAND COASTS.

ACKNOWLEDGEMENTS

The success of the Beach Patrol Scheme in 1975 is due to the people listed below, who are known to have taken part, and all the others who took part but whose names were not entered on the cards.

K. Alistair, Auckland team, Mrs M. L. Barlow, J. A. Bartle, A. Bedford, Dr B. D. Bell, Mr & Mrs R. J. Bellamy, D. J. Bettesworth, D. & J. Biddle, B. & A. Blair, L. D. Boot, D. Booth, F. N. Boyce, G. R. Brown, J. R. Brown, Dr P. C. & M. Bull, H. Bunt, D. J. Campbell, Mr & Mrs W. J. Campbell, W. Cash, S. Chamberlain, Mrs E. M. Cheek, N. Cheshire, C. D. Clunie, Mrs R. Cole-Baker, M. Collier, E. W. Collins, S. Cook, T. Cooper, R. N., S. D. & A. M. Cotter, R. Court, B. & F. Cowan, P. Cozens, Mr & Mrs D. E. Crockett, P. Crombie, Crosby family, T. & M. Damerall, Mr & Mrs A. F. Davis, P. Daysh, S. J. Donaldson, R. & J. Douglas, C. Duval, D. Elder, H. Elder, Mrs G. Eller, B. A. Ellis, L. Esler, M. L. Falconer, H. Ferris, T. P. Fisher, Dr & Mrs C. A. Fleming, R. Forbes, G. Foreman, R. Gallienne, K. Gates, P. Gaze, D. G. Geddes, A. & I. Gollop, Mr & Mrs A. Gordon, K. & M. Green, A. Habraken, W. Hamlet, K. & R. Harlow, P. C. & J. Harper, T. & R. Harty, R. Hatwell, J. Hawken, B. D. Heather, T. Hedges, V. Hensley, B. Hibbert, Mr & Mrs L. Howell, N. Hyde, M. J. Imber, R. Jackson, S. Jenkins, I. Johnson, A. B. Jones, Mr & Mrs R. Kearns, B. Kee, C. & J. Kirkbridge, R. E. Lambert, Mrs M. Lane, D. A. Lawrie, Mr & Mrs G. Leary, Mr & Mrs G. le Vac, A. Makgill, D. G. Medway, S. Mercer, S. M. Merton, P. J. Miller, Mrs R. M. Miller, Mr & Mrs J. Morrison, Mr & Mrs D. P. Murray, Miss M. S. Moody, S. Neville, P. Nunn, Mrs R. C. Ogle, C. O'Donnell, M. O'Reilly, N. Paton, C. D. Paulin, R. Pierce, S. Pitt, Mr & Mrs A. J. Poulton, R. Powlesland, N. & K. Prickett, S. E. Quin, Mrs S. M. Reed, Mr & Mrs Ringer, A. Roberts, P. E. & H. A. Roberts, H. A. Robertson, K. N. Sampson, E. K. Saul, B., R. & J. Searle, D. Shand, M. Shanks, F. Short, D. Sim, R. S. Slack, Mr & Mrs P. G. Smith, G. Stilwell, R. R. Sutton, T. C. L. & E. M. Symmes, Dr & Mrs M. Taylor, Mr & Mrs R. Thomas, M. Twyman, C. R. Veitch, C. Vooren, W. A. Walters, J. & D. Wardle, J. Wharm, P. & E. Watkins, K. A. Westbrook, Mr & Mrs R. W. Wheeler, T. Worthy, A. Wright.

E. & O. E.

I am also personally indebted to Mrs M. L. Barlow, Mrs B. Brown, Mr P. Roberts and Dr G. R. Williams for their helpful comments during the preparation of this paper.

LITERATURE CITED

FALLA, R. A.; SIBSON, R. B.; TURBOTT, E. G. 1966. A field guide to the birds of New Zealand. Collins, London.
 IMBER, M. J.; BOESON, B. W. 1969. Seabirds found dead in New Zealand in 1964. Notornis 16 (1): 50-55.
 OSNZ, 1970. Annotated checklist of the (F. C. Kinsky, Conv.), Ornithological Society of New Zealand Inc. 99 pp. Wellington: A. H. & A. W. Reed.

C. R. VEITCH, N.Z. Wildlife Service, Dept of Internal Affairs, P.O. Box 2220, Auckland