

APPENDIX 1

Surveys of Ashy Storm-Petrels (ASSP) at Bird Rock, Stormy Stack and Chimney Rock in 1969-2001

BIRD ROCK

1969: On 23 August 1969, a brief survey of Bird Rock was conducted and a downy unidentified storm-petrel chick was found (Ainley & Osborne 1973). After finding an incubating adult ASSP in 1972 (below), this 1969 chick also was considered to be an ASSP.

1972: On 3 July 1972, one adult ASSP incubating an egg and one cracked egg were found in sites on Bird Rock. Ainley & Osborne (1973) estimated 10-12 pairs to be present, but Ainley & Whitt (1973) revised this estimate to 5 pairs.

1979: On 1 July 1979, a brief survey was conducted at Bird Rock from 08:30 h to 09:40 h, primarily to conduct a ground count of Western Gull nests (Sowls *et al.* 1980, unpubl. survey archive). ASSP nests were reported only in Area A (see Fig. 2). In one site (2 feet [0.6 m] deep, opening 6" x 4" [-10-15 cm]), an adult and egg were found but petrel odor was noted in 6 more burrows and fresh digging was noted at site entrances. A total of 7 nests were recorded and 14 breeding birds estimated for 1979.

1989: On 6-7 August 1989, a complete nest search was conducted at Bird Rock, with one night of mist-net captures at 2 net sites (net site #1 in front of Area A and net site #2 on the flat top near the landing) using continuous broadcast of ASSP vocalizations (Carter *et al.* 1992, unpubl. survey archive). Three nests were located: (a) a chick was found in a crevice on the NE side (Area F); (b) a chick was found in a small crevice on the S side (Area D); and (c) 22 sites (mostly deep sites and a few small sites; several deep sites had visible side chambers and some very deep sites may have had additional non-visible side chambers) in Area A were inspected and one nest with 2 adults and an egg was found. From 21:30 h to 05:30 h during darkish night conditions and overcast skies with fog and 0-5 kt winds, 41 ASSP were captured in mist-net #1; 95% had bare or refeathering brood patches. The capture period was 21:30-05:00 (7.5 h); birds per capture hour (BPCH) was 5.47. Birds rarely called and vocalization broadcasting tapes appeared not to help capture birds. Most birds caught appeared to be heading for a particular crevice. A few birds were released in front of sites that they appeared to be heading for; most quickly walked back into a site and out of sight and one bird joined another adult in a crevice. Nothing was captured at net site #2 and this net was closed at 23:15 h.

On 31 August-1 September 1989, a second trip to Bird Rock was conducted to check on nests found on 6-7 August, with 1 night of mist-net captures with 1 net in Area A (Carter *et al.* 1992, unpubl. survey archive). Five nests were found (including 2 nests found earlier) but another nest found earlier in Area D was

not checked, making a total of 6 nests for the 1989 season. Two chicks were found in the same nest sites found in early August in Areas A and F. Three new chicks also were found in Area A, one in the same crevice as the nest found in early August. From 21:20 h to 05:00 h during dark night conditions and overcast skies with 8-12 kt winds, 20 ASSP were captured, all with bare or refeathering brood patches, including recaptures of 12 birds banded in early August (Fig. 19). The capture period was 22:30-05:00 (6.50 h); BPCH was 3.08.

Compared to 1969-1979 and 2001 estimates, a higher estimate of 74 breeding birds (or 37 pairs) was derived for 1989, mainly using mist-net capture and recapture data (Chapman's modified Lincoln-Petersen method) to estimate 65 birds on the north side of the rock and adding 9 birds for the south side of the rock (Carter *et al.* 1992, unpubl. survey archive). While only 28 sites were identified, some sites were not counted, more than one site may have had more than one nest, and some potential nesting habitats likely were not accessible.

2001: On 10-11 September 2001, an incomplete nest search was conducted, with 1 night of mist-net captures (Whitworth *et al.* 2002; H.R. Carter, unpubl. data). From 21:00 to 05:00 h during moderately dark night conditions, two ASSPs with refeathering brood patches (scores 4+ and 5, defined in main text) were captured in a mist-net set in front of Area A, in the same general location as a mist-net had been placed in 1989. The first ASSP were heard at 21:38, the first capture was at 23:59, a silent ASSP was seen at 00:50 and the last capture/detection was at 04:11. The capture period was 21:38-04:11 (6.55 h); BPCH was 0.31. Three other storm-petrels were observed flying around the net that were not captured. Twenty-five sites (6 small, 13 medium and 5 large) in Area A were searched but no nests were found and no petrel odor was noted. Large numbers of roosting cormorants and pelicans prevented searches on the "south side" of the rock (probably areas D and E), but searches along the "east" (probably areas F and G) and "west" (probably area B) sides of the rock failed to discover any active petrel nests or evidence of recent nesting. A total of 5-10 breeding pairs was estimated.

STORMY STACK

2001: On 12 September 2001, a nest search was conducted (Whitworth *et al.* 2002; Henderson *et al.* 2014; H.R. Carter, unpubl. data). Four ASSP nests were found: 2 with chicks, 1 with an adult, and 1 with an unattended egg. Three of the nests were found in crevices within a deep fissure running up the steep NW side. Some deep caves (too small to explore) were noted on the NW side. About 20-40 breeding pairs were estimated.

CHIMNEY ROCK

2001: On 22-23 August 2001, a nest search was conducted, with 1 night of mist-net captures (Whitworth *et al.* 2002; H.R. Carter, unpubl. data). From 21:26 to

00:25, during moderately dark night conditions and wind <15 kt, the mist-net was set on the south side of the rock and no birds were heard or captured. During this period, accessible habitat was searched on the whole rock. ASSP feathers were found in one crevice but no nests were found, with little suitable habitat; one pair of ASSP wings (depredated) also was found. From 00:25 to 04:10, the net was placed on the north side of the rock and 5 ASSPs (3 with bare brood patches [score 3], 1 refeathering [score 4] and 1 poorly developed [score 1+]) were captured. The capture period was 00:46-03:58 (3.20 h); BPCH was 1.56. Twice, single ASSP hit but bounced out of the net at 02:35 and 03:04. One Great Horned Owl *Bubo virginianus* (~22:45) and one Barn Owl *Tyto alba* (00:46) were heard.

APPENDIX 2. Summary of individual potential nest sites monitored at Bird Rock in 2012-2015.

Area	Number	Size	Depth (m)	Visibility	Contents			
					2012	2013	2014	2015
A	1	L	1	2	0	0	0/0	0
A	2	M	0.5	1	SGC	SGC/MGC	MDC	MGC
A	3	L	1.25	3	unk	0	0	0
A	4	S	0.3	1	SGC	SDC	0	0
A	4a	S	0.75	1	-	0	MDC	0
A	5	L	0.6-0.75	2	unk	0	0	0
A	5a	-	-	1	-	-	-	0
A	5b	L		1	-	-	-	0
A	6	L	0.75	3	unk	0	0	0
A	7	L	1.5	1	0	0	0	0
A	8	L	1.5-2.0	2	unk	0	0	0
A	9	S	0.25	1	0	0	0	DC
A	10	S	0.3	2	0	0	0	0
A	11	L	1.2	3	unk	0	0	0
A	12a	L	>3	4	unk	unk	0	0
A	12b	L	0.3	1	0	0	0	0
A	13	L	>3	4	unk	unk	0	0
A	14	L	2.3	3	unk	0	0	0
A	15	L	1.25	3	unk	0	0	0
A	16	M	1.0+	1	unk	SCG/MGC	MDC	0
A	17	L	>3	4	unk	unk	0	0
A	17b	-	-	-	-		0	0
A	18	L	>3	4	unk	unk	0	0
A	19a	L	0.3+		unk	-	0	0

A	19b	L	-	3	unk	0	0	0
B	20	S	0.3+	-	LDC	-	SDC	0
B	21	S	unk	-	unk	-	unk	unk
C	22	S	0.5	-	EF	-	0	0
C	23	M	0.5+	-	unk	-	0	0
C	24	M	0.5+	-	unk	-	0	0
C	24b	-	-	-	-	-	-	0
D	25	S	0.5	-	FFC	-	FFC	0
D	26	L	2.5	-	unk	-	0	DC
D	27	S	0.3	-	0	-	0	0
D	28	M	>2.0	-	LDC-SGC	-	0	0
E	29	L	1.5	-	0	-	0	0
E	30	L	0.5	-	0	-	0	0
F	31	M	0.3	-	0	-	0	0
F	32	-	1	-	unk	-	0	0
F	33	L	unk	5	unk	unk	unk	unk
F	34	L	unk	5	unk	unk	unk	unk
G	35	L	unk	5	unk	unk	unk	unk
G	36	M	unk	5	unk	unk	unk	unk
G	37	M	-	1	-	-	-	0

Codes: Size (site entrance): small, medium, medium-large, large. V (Visibility Score): 1 (flashlight sufficient); 2 (egg or egg fragments might require an inspection scope); 3 (scope necessary); 4 (scope, plus extension, insufficient; burrow too deep and/or contorted); 5 (site inaccessible). Contents (definitions of terms in text): S (small); M (medium); L (large); D (downy), G (gawky); C (chick); FF (fully feathered); EF (egg fragment); unk (unknown, usually because inaccessible); and “-“ data not recorded or not available).

APPENDIX 3. Nests of Ashy Storm-Petrels at Stormy Stack in 2013-2015.

Site Number	2013	2014	2015
2	0	0	Egg
3	2 eggs (1 dented)	0	MGC
4	SGC-LGC ¹	0	DC
5	LDC	GC	0
6	0	GC	0
9	0	0	Egg
12	0	0	LGC
14	1 adult in incubating posture	Adult	MGC-LGC
16	0	DC	0
17	0	Egg	0
19	0	0	DC
Total Active Nests	4	5	7

¹ For chick abbreviations, see footnote of Appendix 2.