RED KNOT (*Calidris canutus rufa*) MONITORING AT CAPE LOOKOUT NATIONAL SEASHORE

2010 SUMMARY REPORT

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NATIONAL PARK SERVICE
CAPE LOOKOUT NATIONAL SEASHORE
131 CHARLES STREET
HARKERS ISLAND, NC 28531

Introduction

Serious declines in the population of red knots (*Calidrus canutus rufa*) led to several petitions to the U.S. Fish and Wildlife Service for protection under the Endangered Species Act. In September 2006 the red knot was designated as a candidate for Endangered Species Act protection (Federal Register, 2006). Red knots use the Outer Banks of North Carolina as a stopover site in spring and fall migration. While not as important as some other coastal sites, the Outer Banks may still contribute to the survival of this species.

Previous monitoring of red knots at Cape Lookout National Seashore (CALO) was limited to surveys as part of a broader shorebird study in 1992 and 1993. North Core Banks had greater numbers of red knots than other areas in the Outer Banks (Dinsmore and Collazo, 1995) but surveys in that study did not include any of the areas south of New Drum Inlet.

This report contains a summary of monitoring results for 2010 and comparisons to results from the earlier study and discussion of long-term monitoring of red knots at CALO.

Methods

Surveys for red knots were made of the entire ocean beach and inlet areas on North Core Banks (NCB) and South Core Banks (SCB) beginning in mid-March.

Our survey frequency and timing followed the International Shorebird Census guidelines for spring and fall. Counts were done near the 5^{th,} 15^{th,} and 25th of the month from March 15th to June 5th and from July 15th to October 25th.

Surveys were conducted by the park biologist or biological science technicians with experience identifying shorebirds. Surveys were at different times of day, tides and weather conditions. Monitors recorded the number of red knots observed, the mile location, the latitude and longitude, the amount of human disturbance, tide level and the accuracy of the count (See Appendix 1).

Results

Most of the red knots counted during our surveys were found on North Core Banks with an average of 108 birds. South Core Banks averaged 28. NCB had the two highest counts of 927 birds on May 15 and 262 birds on July 25. The peak numbers were during spring migration with 1005 birds counted on the May 15 census. The spring migration from 15 March to 5 June averaged 221 birds. There was also a small peak in late July and August when fall migrants moved back through (Figure 1). The fall migration from 15 July to 25 October averaged 74 birds. A winter count on December 15th yielded 120 birds on NCB. Red knots were distributed over the length of the seashore (Figure2).

Discussion

Our monitoring confirmed the importance of the seashore as a stopover site for red knots, particularly during spring migration. The relative abundance of red knots on North Core Banks during peak spring migration was 26 birds/kilometer compared to 34 birds/kilometer in 1992-1993. This comparison does take into account the gain of 2 km of census data due to New Drum Inlet closing in 2009. The 1992-1993 study censused 34 km, were as North Core Banks length is 36 km in 2010 after the closing of Old Drum Inlet and New Drum Inlet in March of 2009. NCB averaged more birds overall and had the two highest peak counts. Although the Outer Banks may not be as important as some other sites in the region, the area still provides habitat that may be important for the recovery and long-term survival of red knots.

The methods used in this study would be easy to replicate with just a few trained monitors. Red knot surveys should continue to be integrated into the park's long-term monitoring program.

Table 1. Red knot relative abundance on North Core Banks, 1992-2010.

Year	Date	Peak Count	Kilometers	Abundance
1992-1993			34	34
2006	5-May	618	29.2	21
2007	15-May	718	29.2	24
2008	15-Apr	1287	29.2	44
2009	25-May	525	36	14
2010	15-May	927	36	26

Literature Cited

Dinsmore, S.J. and J.A. Collazo. 1995. Seasonal numbers, distribution and population dynamics of shorebirds on the outer banks of North Carolina. In Factors Affecting Reproduction and Migration of Waterbirds on the North Carolina Barrier Islands. Final Report to the National Park Service.

Figure 1. Number of Red Knots Counted at Cape Lookout National Seashore in 2010.

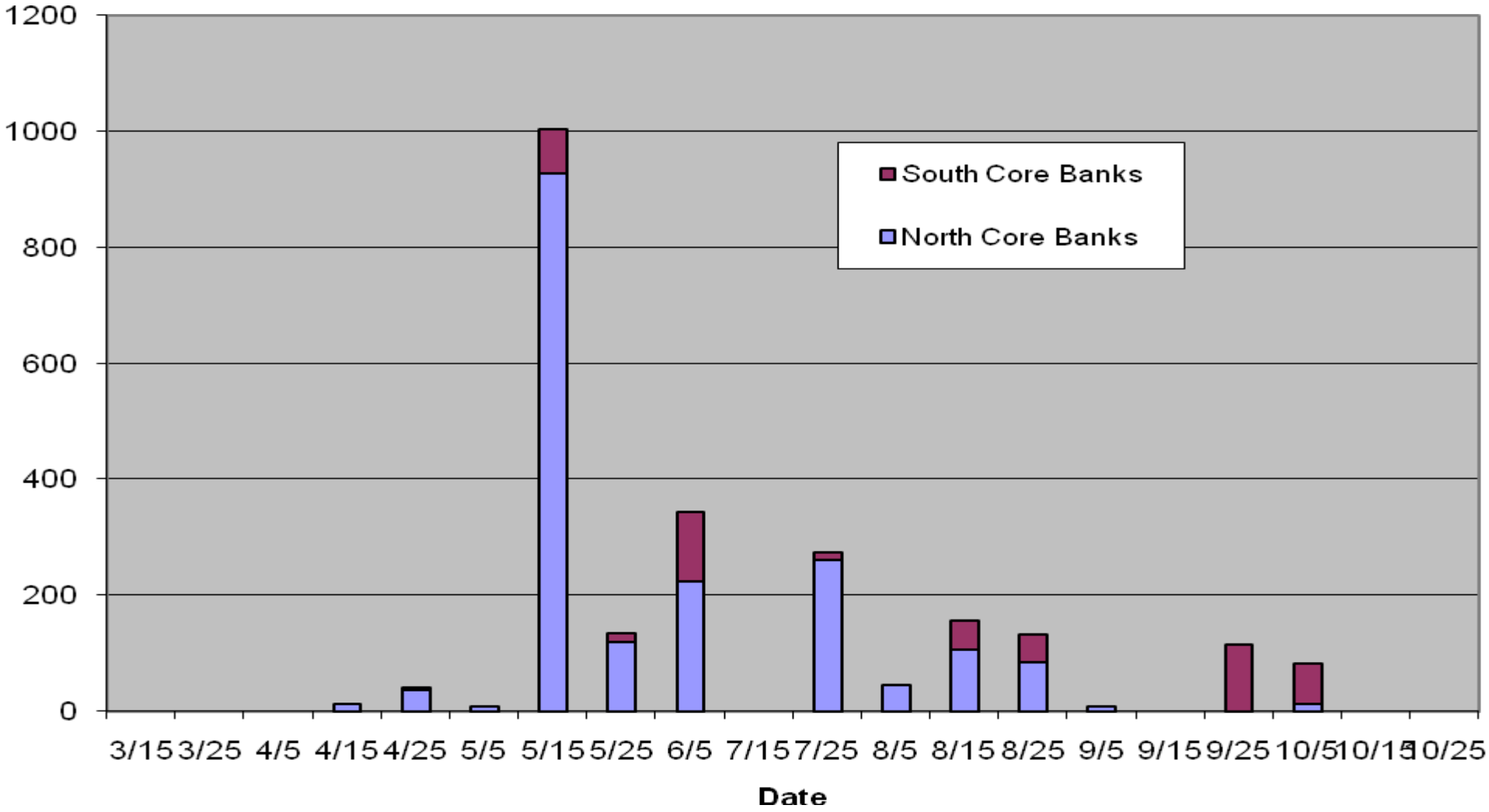
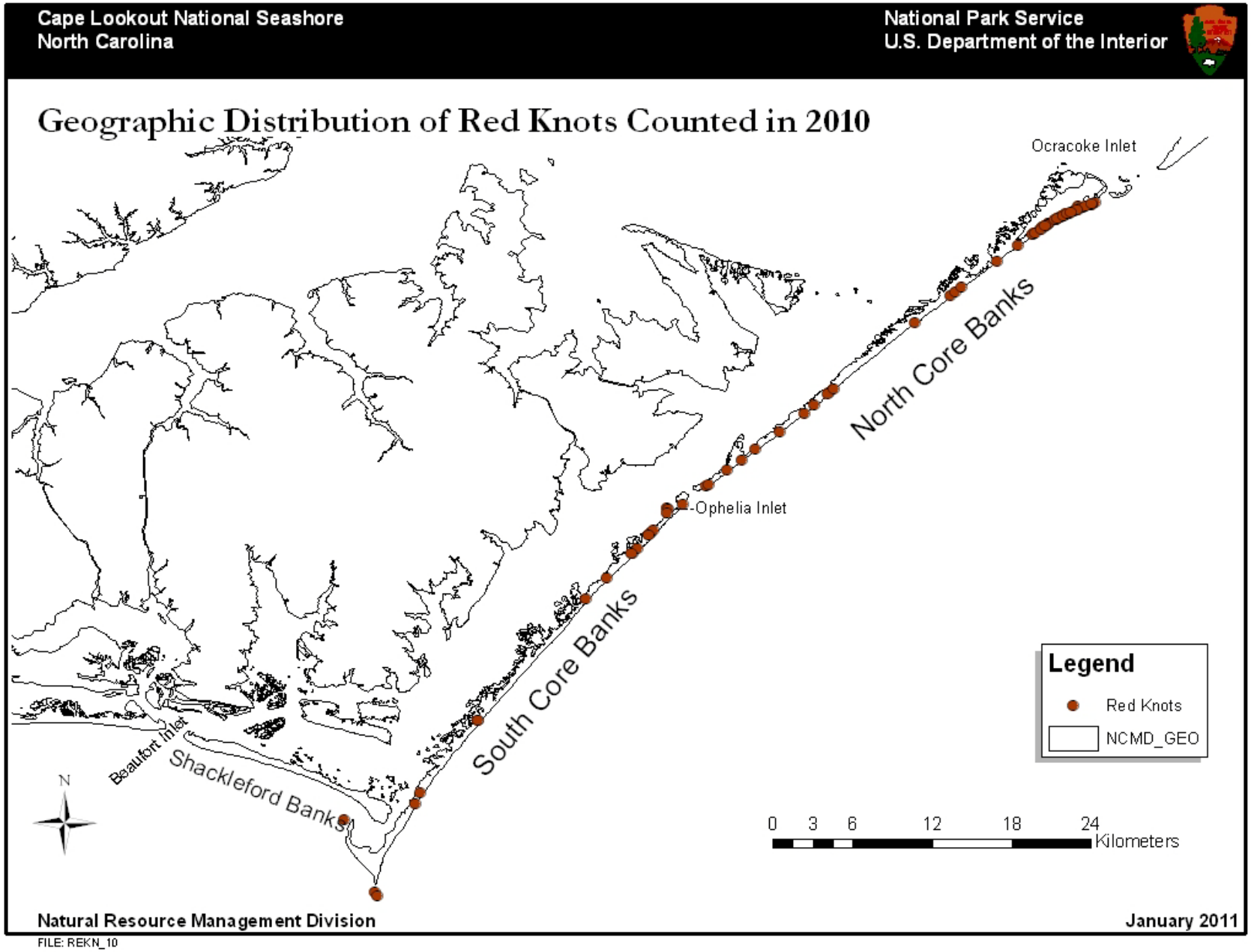


Figure 2. Geographic Distribution of Red Knots Counted in 2010.



Appendix 1

RED KNOT (*Calidris canutus)* SURVEY DATA SHEET
Cape Lookout National Seashore

Name of Observer:_____

Date_____ Island_____

# of REKN	Mile	Latitude (decimal degrees)	Longitude (decimal degrees)	Human Disturbance	Tide	Accuracy

Human disturbance: During this census, shorebirds were:
A=undisturbed, B=disturbed 1-2 times, C=3-4 times, D=5-10 times, E=>10 times, X= unknown

TIDE (coastal sites): 1=high, 2=near high/RISING, 3=near high/ FALLING, 4=half/RISING,5=half/FALLING, 6=near low/RISING, 7=near low/FALLING, 8=LOW, 9=unknown.

ACCURACY: Please indicate in each block whether your count is:
* a true count, ** an extrapolated estimate, or circle a "guestimate"

Appendix 2. 2010 Red Knot Survey Data

Month	Day	Observer	Island	#REKN	Mile	Latitude	Longitude	Disturbance	Tide	Accuracy
4	16	Paula Dailey	NCB	4	21.7	34.35085	76.31804	A	2	*
4	16	Paula Dailey	NCB	9	21.1	34.85827	76.30986	A	2	*
4	24	Paula Dailey	NCB	16	22.33	34.84611	76.3254	A	7	*
4	24	Paula Dailey	NCB	5	14.66	34.9215	76.22628	A	7	*
4	24	Paula Dailey	NCB	15	1.36	35.04853	76.0571	A	7	*
4	5	Bland	SCB	0					2	
4	15	Pickford	SCB	0					3	
4	25	Bland	SCB	4	24	N/A	N/A	B	7	*
5	5	Tom Faughnan	NCB	3	0.9	35.05072	76.04552	A	6	*
5	5	Tom Faughnan	NCB	5	unk	unk	unk	A	6	*
5	15	Paula Dailey	NCB	78	1.22	35.04942	76.04828	A	7	*
5	15	Paula Dailey	NCB	208	1.24	35.0492	76.04919	A	7	*
5	15	Paula Dailey	NCB	342	1.6	35.04705	76.05502	A	7	*
5	15	Paula Dailey	NCB	4	1.76	35.04595	76.05754	A	7	*
5	15	Paula Dailey	NCB	50	2.25	35.04282	76.06534	A	7	*
5	15	Paula Dailey	NCB	77	2.34	35.04211	76.06679	A	7	*
5	15	Paula Dailey	NCB	49	2.65	35.03969	76.07145	A	7	*
5	15	Paula Dailey	NCB	73	2.7	35.0394	76.07211	A	7	*
5	15	Paula Dailey	NCB	21	3.32	35.03392	76.08083	A	7	*
5	15	Paula Dailey	NCB	12	3.8	35.02956	76.08705	A	7	*
5	15	Paula Dailey	NCB	13	14.92	35.91864	76.22923	A	7	*
5	26	Tom Faughnan	NCB	41	5.74	35.01068	76.11256	A	3	*
5	26	Tom Faughnan	NCB	35	3.09	35.03678	76.0771	A	3	*
5	26	Tom Faughnan	NCB	43	unk	unk	unk	A	3	*
5	5	Pickford	SCB	0					3	
5	15	Bland	SCB	68	23	34.84313	76.33624	B	7	*
5	15	Bland	SCB	6	24	34.81284	76.35988	B	7	*
5	15	Bland	SCB	4	43	34.58258	76.5348	B	7	*
5	25	Pickford	SCB	4	44	N/A	N/A	B	5	*
5	25	Pickford	SCB	5	40	N/A	N/A	B	5	*
5	25	Pickford	SCB	7	30	N/A	N/A	B	5	*
6	5	Paula Dailey	NCB	7	17.32	34.89485	76.26008	A	6	*
6	5	Paula Dailey	NCB	6	16.04	34.90738	76.24337	A	6	*
6	5	Paula Dailey	NCB	5	14.76	34.92053	76.22753	A	6	*
6	5	Paula Dailey	NCB	12	14.42	34.92406	76.22335	A	6	*
6	5	Paula Dailey	NCB	7	3.35	35.03403	76.08119	A	6	*
6	5	Paula Dailey	NCB	55	3.21	35.03535	76.07927	A	4	*
6	5	Paula Dailey	NCB	24	3.08	35.03663	76.07715	B	4	*
6	5	Paula Dailey	NCB	9	2.52	35.04108	76.06946	A	4	*

6	5	Paula Dailey	NCB	40	2.28	35.0429	76.06552	A	4	*
6	5	Paula Dailey	NCB	28	1.5	35.04764	76.054	A	4	*
6	5	Paula Dailey	NCB	31	1.42	35.04831	76.05216	A	4	*
6	6	Bland	SCB	30	N/A	34.82716	76.34678	A	4	*
6	6	Bland	SCB	24	N/A	34.82617	76.34767	A	4	*
6	6	Bland	SCB	28	N/A	34.81631	76.35657	A	4	*
6	6	Bland	SCB	32	N/A	34.81273	76.36021	A	4	*
6	6	Bland	SCB	6	N/A	34.69905	76.46493	A	4	*
7	15	Tom Faughnan	NCB	0	N/A	N/A	N/A	N/A	1	*
7	25	Paula Dailey	NCB	29	3.89	35.02928	76.08804	A	7	*
7	25	Paula Dailey	NCB	52	3.81	35.02931	76.08777	A	7	*
7	25	Paula Dailey	NCB	12	3.53	35.03228	76.08358	A	7	*
7	25	Paula Dailey	NCB	19	3.36	35.03383	76.08119	A	7	*
7	25	Paula Dailey	NCB	50	3.25	35.03483	76.07973	A	7	*
7	25	Paula Dailey	NCB	6	2.48	35.04125	76.0686	A	7	*
7	25	Paula Dailey	NCB	5	2.41	35.04178	76.06761	A	7	*
7	25	Paula Dailey	NCB	47	2.18	35.04361	76.06354	A	7	*
7	25	Paula Dailey	NCB	42	1.9	35.04519	76.05999	A	7	*
7	15	Pickford	SCB	0					1	
7	25	Altman	SCB	13	24	N/A	N/A	A	8	*
8	5	Tom Faughnan	NCB	7	3.78	35.0299	76.08675	A	2	*
8	5	Tom Faughnan	NCB	5	3.47	35.03276	76.08276	A	2	*
8	5	Tom Faughnan	NCB	5	3.12	35.03589	76.07796	A	2	*
8	5	Tom Faughnan	NCB	6	1.8	35.04566	76.05894	A	2	*
8	5	Tom Faughnan	NCB	22	1.75	35.04576	76.05804	A	2	*
8	15	Paula Dailey	NCB	3	19.24	34.87634	76.28532	A	2	*
8	15	Paula Dailey	NCB	51	3.26	35.03933	76.07277	A	2	*
8	15	Paula Dailey	NCB	18	2.52	35.04117	76.06944	A	2	*
8	15	Paula Dailey	NCB	34	2.43	35.04185	76.06807	A	2	*
8	24	Paula Dailey	NCB	8	18.55	34.88331	76.27669	A	3	*
8	24	Paula Dailey	NCB	1	4.61	35.02191	76.09797	A	3	*
8	24	Paula Dailey	NCB	5	3.27	35.03462	76.0798	A	3	*
8	24	Paula Dailey	NCB	16	3.23	35.03882	76.07311	A	3	*
8	24	Paula Dailey	NCB	24	2.66	35.03975	76.07139	A	3	*
8	24	Paula Dailey	NCB	5	2.42	35.04165	76.06775	A	3	*
8	24	Paula Dailey	NCB	25	1.73	35.0429	76.06518	A	3	*
8	4	Altman	SCB	0						
8	14	Altman	SCB	16	44.5	34.58033	76.53263	A	8	*
8	14	Altman	SCB	35	24	34.82847	76.34568	A	8	*
8	15	Bland	SCB	0						
8	27	Plato	SCB	12	39.3	34.64988	76.5033	A	7	*
8	27	Plato	SCB	37	40	34.64312	76.50689	A	7	*
9	5	Paula Dailey	NCB	6	19.98	34.86948	76.29552	A	4	*
9	5	Paula Dailey	NCB	2	1.2	35.04965	76.04797	A	4	*

9	15	Tom Faughnan	NCB	0	N/A	N/A	N/A	N/A	4	*
9	25	Tom Faughnan	NCB	0	N/A	N/A	N/A	N/A	3	*
9	5	Bland	SCB	0						
9	15	Plato	SCB	0						
9	25	Bland	SCB	48	Spit	34.63199	76.55505	A	5	*
9	25	Bland	SCB	12	N/A	34.69934	76.46467	A	5	*
9	25	Bland	SCB	14	N/A	34.78151	76.3915	A	5	*
9	25	Bland	SCB	8	N/A	34.79635	76.37714	A	5	*
9	25	Bland	SCB	18	N/A	34.82493	76.34855	A	5	*
9	25	Bland	SCB	16	Ophelia	34.8427	76.33584	A	5	*
10	5	Tom Faughnan	NCB	1	21	34.85952	76.30827	A	7	*
10	5	Tom Faughnan	NCB	1	15.45	34.9133	76.23612	A	8	*
10	5	Tom Faughnan	NCB	3	10.05	34.96896	76.16840	A	6	*
10	5	Tom Faughnan	NCB	5	8.17	34.98713	76.14413	A	6	*
10	5	Tom Faughnan	NCB	1	7.88	34.99006	76.14049	A	6	*
10	5	Tom Faughnan	NCB	1	1.98	35.04447	76.06232	A	4	*
10	15	Chris Bland	NCB	0					7	*
10	25	Jon Altman	NCB	0					7	*
10	5	Plato	SCB	71	23.17	34.83989	76.33618	A	5	*
10	15	Bland	SCB	0					8	*
10	25	Altman	SCB	0					8	*
12	15	Jon Altman	NCB	120	7	34.99342	-76.13606	A	8	*