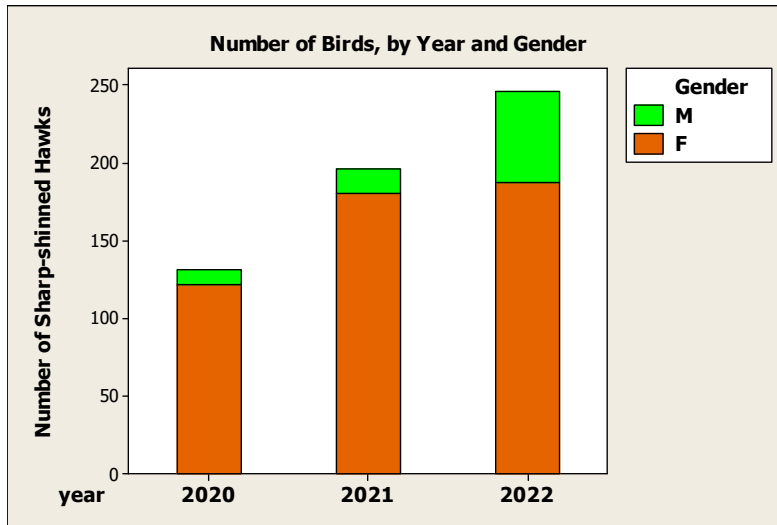


Summary Data on Sharp-shinned Hawks for the Springs 2020, 2021, and 2022
Braddock Bay Raptor Research
David Mathiason, December 2022

Some of the numbers in this document will differ from those which were published before. The data used for this summary represents our current ‘best’ dataset for the 2020, 2021, and 2022 spring banding seasons. The data used are all sharp-shinned hawks for which a capillaria score was assigned. Over that three-season period, we trapped, banded, and recorded capillaria scores for 567 sharp-shinned hawks. The data are tabled below and are further broken down by gender. We made a concerted effort over the years to trap more males and that is reflected in the numbers below.

Table 1 and Graph 1: Count of SSHAs for 2020-2022, by Gender

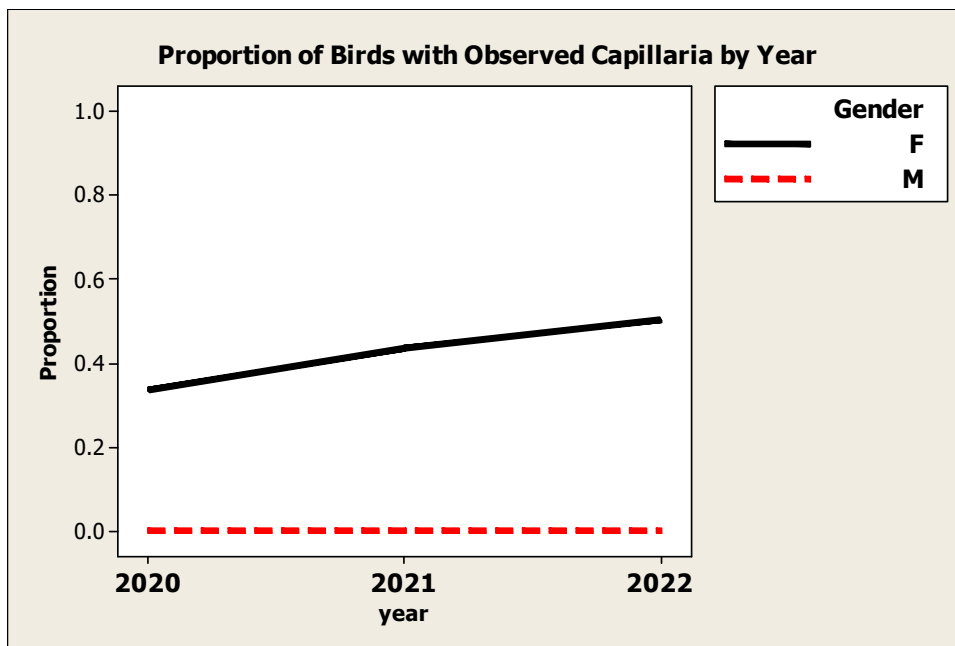
	2020	2021	2022	Total
Female	116	180	186	482
Male	9	16	59	84
Total	125	196	245	566



Past data has shown that capillaria infections are observed in a much higher proportion of females than males. The table and graph below show that individually for each of the three seasons. It is apparent that the rate among females is increasing, while that for males is staying low. We have no explanation for the difference in the observed rate of capillaria between males and females.

Table 2 and Graph 2: Proportion Observed with Capillaria, by Year and Gender

Capillaria Observed?		2020	2021	2022	Total
Females	Yes	41 (35%)	80 (44%)	94 (51%)	215 (45%)
	No	75 (65%)	100 (56%)	92 (49%)	267 (55%)
Males	Yes	0 (0%)	1(6%)	2 (3%)	3 (4%)
	No	9 (100%)	15 (94%)	57 (97%)	81 (96%)

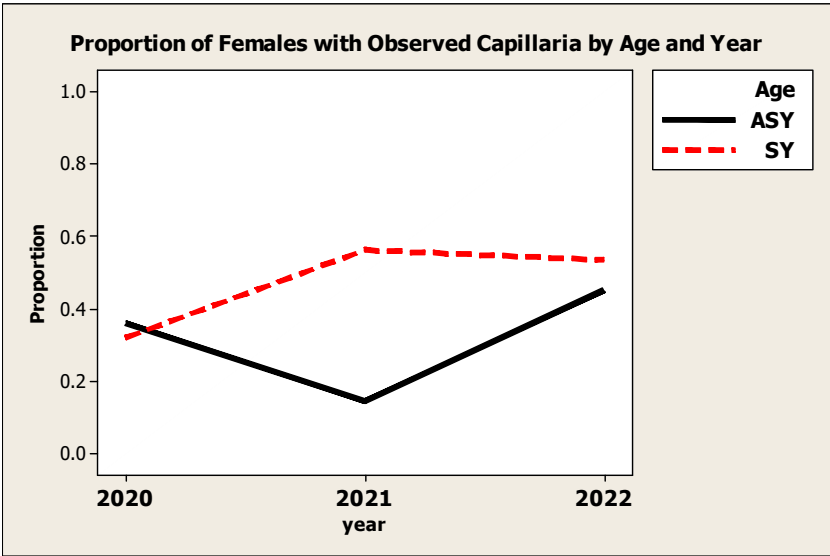


From this point on, we will only look at females.

The table and graph below show the difference in rate of observed infection between young (SY) and older (ASY) birds across the three years. Overall, the younger (SY) birds tend to display a higher proportion of capillaria (49% vs 35%) but much of that overall difference is due to the large difference in 2021. The year-to-year inconsistency in trends is shown without explanation (because we don't have one). For these displays, birds that were aged as TY or ATY were grouped together within the ASY class.

Table 3 and Graph 3: Proportion of Females with Capillaria, by Year and Age

Capillaria Observed?		2020	2021	2022	Total
SY (young)	Yes	27 (34%)	71 (55%)	61 (53%)	159 (49%)
	No	52 (66%)	57 (44%)	54 (47%)	163 (51%)
	Total	79	128	115	322
ASY (adult)	Yes	14 (38%)	9 (17%)	33 (46%)	56 (35%)
	No	23 (62%)	43 (83%)	38 (54%)	105 (65%)
	Total	37	52	71	160

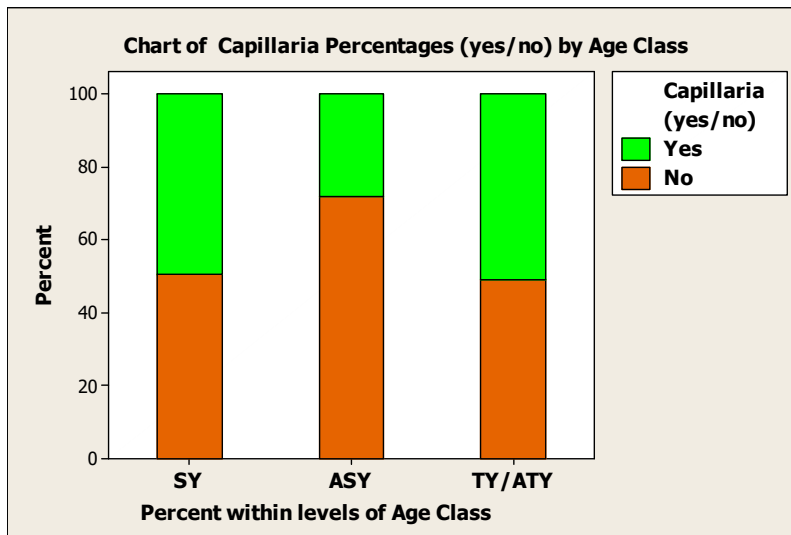


Females only

If we split out those older birds that can definitively be classified as TY or ATY, then we see that those older birds display the infection at a higher rate even than the SY birds. The percentage differences in the table below are statistically significant ($P=.000$) but we don't know what that really means. Part of the confusion is the year-to-year variation, as seen on page 3.

Table 4 and Graph 4: Proportion of Females with Capillaria, by Age

Capillaria Observed?	SY	ASY	TY/ATY
Yes	159 (49%)	32 (28%)	24 (51%)
No	163 (51%)	81 (72%)	23 (49%)
Total	322 (100%)	113 (100%)	47 (100%)



Females only

We record the level of observed capillaria infection on a 0-5 scale. Looking at the table and graph below, it seems that the biggest change over the years has been among the 'low' scores of 0-3 (with zeroes decreasing). The more serious scores of 4 and 5 are remaining at levels of about 5% and 2%, respectively.

Table 5 and Graph 5: Capillaria Scores by Year

Score	Year			Total
	2020	2021	2022	
0	75 (65%)	100 (56%)	92 (49%)	267 (56%)
1	17 (15%)	34 (19%)	47 (25%)	98 (20%)
2	15 (13%)	23 (13%)	17 (9%)	55 (11%)
3	1 (1%)	10 (6%)	19 (10%)	30 (6%)
4	6 (5%)	9 (5%)	8 (4%)	23 (5%)
5	2 (2%)	4 (2%)	3 (2%)	9 (2%)
Total	116 (100%)	180 (100%)	186 (100%)	482 (100%)

