

Capillaria Inspection Protocol for Sharp-shinned Hawks

Background: Banders with Braddock Bay Raptor Research, near Rochester, NY have been observing some rather extreme and graphic cases of a host infection due to a capillaria nematode in Sharp-shinned Hawks. In some cases, there is an extreme reaction to this parasite in ways that will be immediately obvious. Typically, though, you have to look into the bird's mouth. Small lesions can be seen on the top and/or sides of the bird's mouth and there will sometimes be a waxy-looking substance under the tongue or around the edges of the mouth.

- Females seem to be showing the effect at a much higher rate than males; the infection rate in males is very low.
- At Braddock Bay, during the spring 2022, banders observed capillaria in 48% of female SSHA captured.
- At Mackinac Straights, during the spring 2022, capillaria was observed on 45% of females
- In Cedar Grove Wisconsin, during the fall 2021, banders observed capillaria in 24% of females



We are asking banders to participate in a study to document the extent of this observed infection. Minimally, please take a look in the bird's mouth. We understand that feather-pulling is a luxury for times that are not busy (and also must be specified on the banding permit).

This disease is transmissible to other birds. We encourage banders to keep two separate sets of holding cans, one for birds that show signs of infection and another set for those that don't. Routine disinfecting of cans will not make them safe for uninfected birds.

It is good practice to start looking at other species too, just in case.....

Procedure:

1. Inspect the bird during the extraction process.
2. If there is no evidence of capillaria infection, then write down a score of C=0 in the appropriated column of your data sheet and move to the next bird. We do want two breast feathers of birds from each banding. While feather sampling from infected birds is a priority, we want 50 samples from each station and so a particular station might want to sample some birds that score C=0.

If there is no capillaria score recorded, then necessarily we will assume that you did not look – and that is perfectly fine. We all sometimes get busy or simply forget. Please only write a score of zero if you checked the bird and did not observe any infection. This is important for calculating the percentage of birds that are infected.

3. If you do see evidence of infection:
 - a. Band the bird.
 - b. Score the extent of that infection using the 0-5 scoring paradigm that has been supplied. The scoring paradigm is not a perfect representation of all possible visualizations; do the best you can. A score of 3 and above typically means there is some distortion of the edge of the beak (the commissure or gape).
 - c. Continue with collecting and recording the usual data on your standard banding form.
 - d. If possible and only if your permit allows it, collect two breast feathers from HY birds and place in an envelope. Only pull feathers from HY birds.
 - e. If possible, please also record a fat score and muscle (keel) score. Again, this might only be possible in certain situations and we understand that.
4. Envelopes with feathers need to be labeled, minimally with band number, location species, sex, date, and capillaria score.
5. When submitting your data to the banding lab:
 - a. Please record the capillaria score in one of the User Fields available. Name that field Capillaria in the Settings tab (Settings -> User Fields).
 - b. If the bird has a capillaria score greater than zero, use the 500 series for status: 500 for normal release of sick bird, 518 if blood sample also taken, etc.

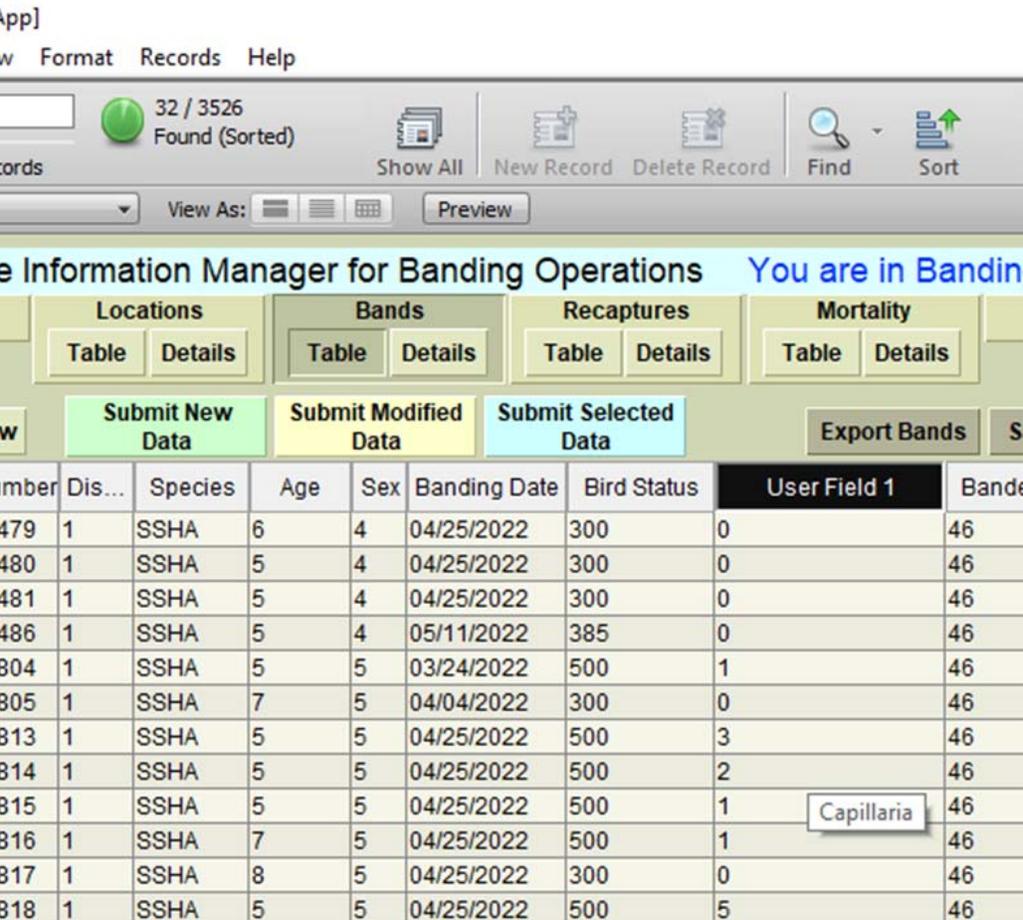
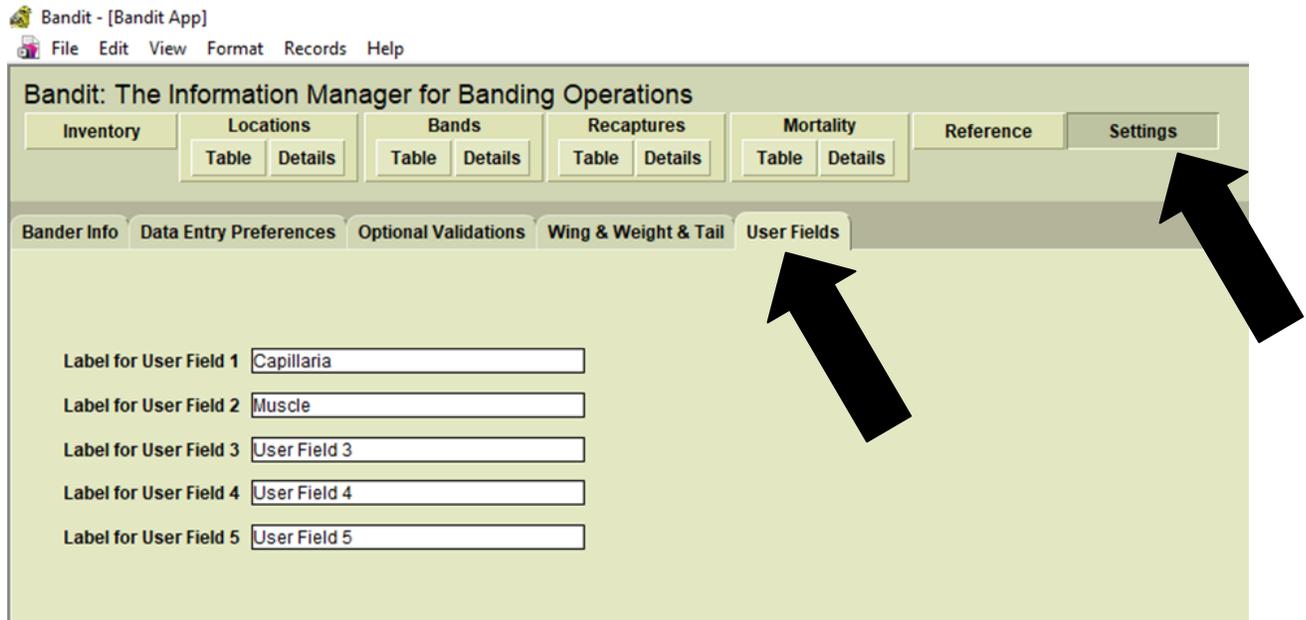
These two submission details are at the request of the Banding Lab.

6. We would like a data export (in excel) of all data involving sharp-shinned hawks. This will allow analyses involving the overall condition of the birds and possible association with capillaria score.

Data Considerations

Naming User Fields

Please name one of the available User Fields in Bandit to be 'Capillaria'. This is done in the Settings Tab, as shown below. Please use that field to record the capillaria scores (numbers only) 0-5, as shown in the data page. Note that multiple bird status levels are used here.



If possible, and only if agreed to by all banders involved, please send data spreadsheets to david.mathiason@gmail.com. The data below, from Nick Alioto at Macknac Straits, is a beautiful example (and more complete than mine).

My goal is to create an aggregate collection of data for use by anyone who wants to work on this project (including myself, of course). My intention is that all data, and any analyses that I do, will be made available to anyone. Such data is critical to monitor changes in the spread (increase or decline) of this infection both regionally and across seasons.

By adopting a common data submission format, it will be also possible in the future for anyone to obtain meaningful data from the banding lab. For now, I would like to summarize results for all to use. And if someone objects to this, that is OK too.

Capillaria Data 2022 - Microsoft Excel

Day	Year	Band Number	Species	Age	Sex	Wing	Mass	Fat	Muscle	Lesion	Ph
5	8	2022 1893-71438	SSHA	SY	F		196	176	1	2	0 N
4	9	2022 1893-51562	SSHA	ASY	F		201	186	3	1	1 Y
4	23	2022 1893-51565	SSHA	SY	F		191	192	3	3	1 Y
4	23	2022 1893-51568	SSHA	SY	F		197	170	3	3	1 Y
4	24	2022 1893-71407	SSHA	ATY	F		197	218	2	3	1 Y
4	25	2022 1893-71408	SSHA	TY	F		197	154	0	1	1 Y
4	25	2022 1893-71409	SSHA	SY	F		200	170	2	2	1 Y
4	26	2022 1893-71411	SSHA	SY	F		186	162	1	2	1 N
4	28	2022 1893-71414	SSHA	TY	F		204	196	4	3	1 Y
5	1	2022 1893-71418	SSHA	SY	F		198	168	0	2	1 Y
5	1	2022 1893-71420	SSHA	SY	F		194	174	3	3	1 Y
5	4	2022 1913-69137	SSHA	SY	F		194	154	1	3	1 Y
5	5	2022 1893-71434	SSHA	SY	F		200	192	1	3	1 Y
5	12	2022 1893-71440	SSHA	SY	F		193	152	0	2	1 N
4	16	2022 1893-51563	SSHA	ASY	F		195	192	4	1	2 Y
4	24	2022 1893-71404	SSHA	SY	F		196	214	5	2	2 Y
5	2	2022 1893-71426	SSHA	SY	F		188	164	3	2	2 Y
5	3	2022 1893-71431	SSHA	SY	F		193	172	2	2	2 Y
5	7	2022 1893-71437	SSHA	TY	F		191	180	2	3	2 Y
4	23	2022 1893-51566	SSHA	ASY	F		194	192	4	3	3 Y
5	1	2022 1893-71433	SSHA	TY	F		186	180	2	2	2 Y