FIELD COLLECTION PROCEDURES

by

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Personnel engaged in field work frequently have occasion to examine dead animals or those in poor condition. Little is known regarding the importance of parasites, diseases, nutritional deficiencies and other aspects affecting our wildlife populations. Therefore, it is desirable that as much information as possible be secured whenever the opportunity presents itself. The following notes will serve as a guide to secure useful information from animals found dead or collected for examination. The principles outlined apply equally well to birds or mammals.

Methodology involves three phases:

1) Making the examination.
2) Preservation of the whole or parts of the animal and any parasites or anomalies which may be found.
3) Recording of full and accurate notes.

I. MAKING THE EXAMINATION

A. If the animal is found dead, study the site where it is found (the kind of cover, in the open, dense cover, etc. Is the animal in an unusual habitat?).

1. Note the position of the animal. Is there any sign of a struggle?
2. Are there any feces near the animal?
3. If snow exists, backtrack from the animal and note how the animal was walking, evidence of feeding, falling down, etc.

NOTE: When examining animals (particularly those which have been known to transmit infectious diseases to man) which have died from an unknown cause, certain precautions should be observed. Rubber gloves should be part of all field kits and used during examinations. Care should be exercised to ensure that open cuts or scratches on the hands and exposed skin do not become contaminated with material from the animal. Hands should be washed thoroughly with hot, soapy water after the examination is completed. Equipment used should be cleaned with Dettol or a similar type of disinfectant.

B. Examine the animal.

1. Note external signs of violence.
2. Examine all external apertures for discharge, bleeding, etc. (nostrils, mouth, anus).
3. Note the condition of the hide or plumage (rough, smooth, hair or feathers falling out, etc.).
4. Carefully examine the whole body for external parasites (ticks, etc.), paying special attention to the following areas:

   - mammals - the groin, abdominal area, inside the ears; watch for lumps under the hide indicating the presence of warbles, anal area, shoulders.

   - birds - top of the head, flanks, legs (for mites and scabs); examine the extended wing against the light; check ears and eyes.

5. Note any signs of mange, skin tumors, healed or festering wounds.
6. Skin the animal, noting: wounds, excessive fluid or fat under the skin, discolourations, size of testes in mammals, worms under the skin, bots, etc.
7. Open the carcass:

   - mammals - ventrally from throat to anus; break back the ribs. In large animals, partially free the fore and hind legs from their attachment with the body.

   - birds - carefully remove the breast by cutting through the ribs and other breast bones on each side.

8. Examine the internal organs without disturbing them at first, then make a more complete examination. Note:

   i) condition of lining of body cavity and membranes covering the organs (spotted, clear, dry, moist).
   ii) inflammation of organs, excessive swelling, etc. Look for blotches, spots on the liver and for parasites attached to the liver or imbedded in it. Examine the lungs for congestion, cysts, worms in bronchi and bronchioles.
   iii) excessive amount of fluids in abdominal cavity.
   iv) examine the stomach and intestine section by section, flushing out the contents with water and searching for worms. Careful examination will be necessary to reveal the very small ones.
   v) check and cut open all the other principal organs. Palpate lungs of big game for presence of cysts. Cut open bronchi and bronchioles in search for lung worms.
   vi) check for serum clots in blood vessels.

vii) examine reproductive tract in the case of mammals to determine pregnancy history or to collect foetuses. This applies particularly to big game. Did the animal have a calf at heel?

II. PRESERVING THE MATERIAL

There are a number of special preservatives used in preserving parasites and tissue samples. However, few, if any, of these are available to the man in the field. The simplest and most generally useful preservative is 10% formaldehyde. (Use one part commercial formaldehyde to nine parts water.) Formaldehyde is available in commercial form at most drug stores.

Parasites - Parasites from various organs should be kept separate and labeled appropriately to indicate the organ or part of the animal from which they came. Parasites should not be put in water until preservative is available. By osmotic action, these organisms will eventually "explode" making diagnosis impossible. All nematodes (round worms) should be preserved in hot glycerin-alcohol (70% alcohol and glycerin in a ratio of 10:1--drop worm into hot mixture and then store in vial). Other parasites or cysts carrying them can be preserved in 10% formaldehyde. If preservative is not immediately available, place the worm on a piece of tissue from the animal, fold it over and place in air-tight container to prevent drying.

Tissues - The whole or part of diseased organs should be saved in 10% formaldehyde with the proper labels. Cut into small enough pieces to ensure fixation occurs uniformly throughout the tissue.

Blood - In the case of birds, it is sometimes of value to obtain "blood smears" if the appropriate glass slides are available.

Food Samples - Birds - To provide material for food habit studies, it is desirable to preserve the crop contents and the entire gizzard. If the latter organ is to be preserved, it should not be opened for parasite examination. The crop should be removed intact and the openings tied off with string. The crop, along with the gizzard (and, if possible, the whole digestive tract) should then be wrapped in cheesecloth or other light material and immersed in 10% formaldehyde, and labeled appropriately. After a lapse of several days, the materials can be removed and shipped in cloths moistened with 10% formaldehyde and enclosed in metal containers (coffee cans are excellent for this purpose).

- Mammals - The sampling of mammalian digestive tracts for food samples is somewhat more complicated than in the case of birds and will not be dealt with here. Where the whole stomach can be preserved, it may be treated as indicated above. The stomach should be punctured in several places to permit the entrance of the formaldehyde.

III. NOTES AND LABELS

No matter how carefully material is collected, it is worthless unless it is accompanied by the proper labels and notes. In general, labels should be written with a soft pencil on heavy, more or less waterproof, paper and placed in the containers with the specimens. In the case of food samples, the labels should be wrapped with the samples.

Labels - Labels should show:

1. The place where the material was collected--section, township, range, name of lake, road, etc.--be as specific as possible. Also, detachment, district and region should be indicated.
2. The date in full--day, month, year.
3. The name of the species from which the material was collected.
4. The organ from which parasites or tissue samples were collected (i.e., upper intestine, liver [left lobe], right nostril, etc.).
5. The sex of the animal (if in doubt, indicate that the sex was not determined with certainty, i.e., "Male (?)" or "Female (?)").
6. The age of the animal if known (i.e., adult, fawn, downy chick, spike buck, etc.). Collect jaw from big game for aging.
7. The time of day that the animal was collected if it was taken alive.
8. Measurements: total length (tip of nose to the base of the tail vertebrae); length of tail (vertebrae only); weight, if possible, heart girth. In the case of antlered animals, measurements of antlers are of interest, therefore, they should be collected and submitted for measurements, or scored according to Boone and Crockett rules on the proper forms and submitted.
9. The name of the collector and address.
10. Photographs are most useful and frequently save many written words.

Notes - If complete labels are attached to material, notes are not generally necessary. However, if notes are carefully made, they are a great aid when collected material is examined. Notes should be dated and labeled with the name of the place where the notes were made and the name of their author. They should be neat, concise, but full enough to give a complete picture of the observations made. They must be accurate. It is almost impossible to make field notes too full or too accurate. If you desire to keep a copy of your notes, submit them and following photocopying, the originals will be returned.

GENERAL COMMENTS

If big game animals are to be sacrificed, it is preferable that a neck shot be used. Shots into the abdominal area destroy organs that should be examined and brain shots make this organ totally useless if it is to be examined for brainworm.