Handbook for Veterinarians Assisting with BC SPCA Cruelty Cases

For Staff, Volunteer, and Contract Veterinarians

BCSPCA

SPEAKING FOR ANIMALS

THE BRITISH COLUMBIA SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS

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OUR MISSION: To protect and enhance the quality of life for domestic, farm and wild animals in British Columbia.

Purpose

This handbook provides a reference for staff, volunteer, and contract veterinarians providing services for animals during the course of a BC SPCA Cruelty Investigation, including the provision of care for seized or surrendered animals.

About the BC SPCA and the Prevention of Cruelty to Animals Act (PCA Act)

The primary role of the BC SPCA's Cruelty Investigations Department (CID) is to investigate reports of cruelty against animals in the province of B.C. and take the necessary steps to alleviate animal distress.

While the primary objective is to assist animals and relieve distress, the secondary objective of any investigation is to decrease the likelihood of repeated abuse through education of the owner, cooperation, and if necessary, deterrence in the form of legal proceedings.

The BC SPCA was created under the auspices of the provincial Prevention of Cruelty to Animals Act (PCA Act), and is the only animal welfare organization in B.C. that has the authority to enforce laws relating to animal cruelty and to recommend charges to Crown Counsel for the prosecution of individuals who inflict suffering on animals.

As of 2017, The Department has 31 full-time, special provincial constables (SPCs) to carry out their life-saving work.

BC SPCA Investigations

When an individual observes an animal or animals they believe are in distress they are strongly urged to contact the BC SPCA Cruelty Hotline (1-855-622-7722). Professional call centre operators are trained to gather as much information as possible from anyone calling the hotline. Operators try to determine if the animal(s) may be in distress and/or require a SPC Visit. Calls requiring investigation by an SPC generate a case file number. The caller is assigned the status of 'complainant' and animal guardian(s)/ perpetrator(s) are assigned the status 'person of interest' (POI). The complainant's information will be requested in the event that the attending officer requires further information or clarification. If requested, the complainant may be anonymous or can request to be kept confidential (further statements may be necessary in order to obtain a search warrant).

Once a case file is generated an officer will be assigned the file and follow-up. Urgency depends on complaint and state of animals determined by call centre operator and/or SPC. The SPC will then attend a property and request to speak with animal guardian or caretaker, advising them of the concerns brought forward by the complainant. At that time, if the guardian is cooperative, the officer would request to examine the animal and its living conditions. If the animal was noted to be in distress as defined by the PCA Act a "Notice" would be issued to allow the owner the opportunity to relieve the noted distress in a reasonable amount of time. For example, if an officer observed an animal to have a chronic untreated injury, the officer may issue a Notice that would likely state: "Have

your animal examined by a veterinarian within 1 week regarding injury, follow any and all recommendations." If at the time of examination, the veterinarian found that the injury was causing the animal pain they may recommend pain medication and/or a surgical procedure within a specified time period. The officer would then follow up with the veterinarian to ensure that all recommendations were followed and if so, the file would be finalized.

The animal's guardian and/or caretaker will usually be provided with an opportunity to relieve the animal's distress. If the guardian does not comply with the Notice, an officer may follow up with legal action if necessary (this includes applying for a warrant and/or possible animal cruelty charges).

BC SPCA Legal Action

If an animal continues to be in distress and the owner is either unable or not willing to relieve that distress intervention is necessary and a constable may need to apply for a Search Warrant. If the animal is found to meet the definition of distress in the PCA Act at the time of the execution of the warrant, removal of the animal(s) may be necessary to relieve the animal(s)'s distress.

BC SPCA SPCs are Peace Officers under the Police Act, and as such they are able to apply for and execute search warrants. In order for a warrant to be granted, BC SPCA SPCs must prepare an Information to Obtain (ITO) as part of their application which has evidence or facts to prove why the animal(s) is/are in distress and submit it in person to a Judicial Justice or Justice of the Peace. In remote locations or during certain times of day, BC SPCA SPCs are permitted to apply for a telewarrant via fax if they are unable to appear before a Judicial Justice or Justice of the Peace in person.

If the application is approved, a Search Warrant is granted with an allotted time frame for its execution. This will almost always be within daylight hours. Within that time frame, BC SPCA SPCs are allowed to enter the Property to determine if animals are in distress and may remove animals if necessary. Veterinarians are often written into the ITO and requested to attend for their expertise and to document their findings to present as evidence.

Onsite Veterinary Presence

If a Veterinarian is requested to attend during the execution of a BC SPCA warrant, please be mindful of the following:

1. **Be familiar with the 18 signs of distress** as defined by the PCA Act:

> (2) For the purposes of this Act, an animal is in distress if it is
>
> (a) deprived of adequate food, water, shelter, ventilation, light, space, exercise, care or veterinary treatment,
>
> (a.1) kept in conditions that are unsanitary,
>
> (a.2) not protected from excessive heat or cold,
>
> (b) injured, sick, in pain or suffering, or
>
> (c) abused or neglected.

2. **Be prepared to back up your statements and observations with evidence.** The lead investigator will often have someone on site to take photographs- do not be hesitant to

request a photograph be taken of something you observe and will be noting in your report. If there is no designated photographer, you should ask to take photos/video on your own device (see Veterinary Examinations, Diagnostics, and Recordkeeping section below).

3. **Take detailed notes** (you can use a voice recorder to dictate your notes and write them after). Ensure that recommendations are stated and passed along to the Lead Investigator regarding further veterinary diagnostics and/or treatment. Immediate/urgent recommendations and preliminary exam notes must be sent to the Lead Investigator within 24 hours to ensure timely care is provided to relieve distress.
4. If an animal is noted to need **immediate veterinary treatment**, advise the Lead Investigator of those recommendations. The Lead Investigator will ensure that follow up treatment is done within the recommended time frame.

5. If there is more than one animal, **ensure that you are referring to each animal as it is identified** by the lead investigator.

6. **Be professional.** Sometimes, the owner of the animal(s) is present during the warrant and may take photographs or videos.

7. You will be asked to **sign a confidentiality agreement** and **are not permitted to share any information** pertaining to the case with anyone (including social media).

8. **Be familiar with the Critical Distress Protocol** as defined in the PCA Act:

> **Relieving critical distress in animals**
>
> **12** (1) In this section, **"critical distress"** means distress in an animal of such a nature that
>
> (a) immediate veterinary treatment cannot prolong the animal's life, or
>
> (b) prolonging the animal's life would result in the animal suffering unduly.
>
> (2) If, in the opinion of
>
> (a) a registered veterinarian, or
>
> (b) an authorized agent, if a registered veterinarian is not readily available,
>
> an animal is in critical distress, the registered veterinarian or authorized agent may destroy the animal or have the animal destroyed.

Post Removal Follow up and Procedures

If the animals have been removed from the property they will be transported to one or multiple BC SPCA Animal Shelters (farm and exotic animals may be taken to a boarding or veterinary facility experienced in their care). It is important for the onsite veterinarian to communicate with the Lead Investigator and note any animals that may need immediate or further veterinary treatment. The Lead Investigator will be in charge of ensuring that the shelter Point Person is aware of the veterinary recommendations for each animal.

The owner will then have 14 days to dispute the removal of their animals. They can opt to surrender some or all of the animals to the BC SPCA at any time during the hold period. If the removal of the animals is disputed by the guardian, the Chief Prevention and Enforcement Officer (CPEO) will decide if it is in the animals' best interest to be returned to the guardian. During a dispute process, the owner will be sent full disclosure of the file (including all notes, photographs, veterinary reports, etc.) **One of the most key pieces of evidence that the CPEO reviews in making any decision around**

the best interest of the animal is the report of the veterinarian. As such, it is essential that this report be detailed and in the prescribed format. A template that can guide a veterinarian on what is required in such a report is available and attached in the appendix. In addition, veterinarian reports are discussed in more detail later in this handbook.

If the decision of the BC SPCA is that it is not in the best interest for the animal(s) to be returned, a written decision will be issued to the owner and they will then have 'at least' four days in which they can appeal the BC SPCA's decision. This appeal is handled by an independent Administrative Tribunal called the B.C. Farm Industry Review Board (BC FIRB).

Under the PCA Act, BC FIRB may hear appeals in relation to certain BC SPCA decisions, including:

- A decision to take custody of an animal,
- A decision to affirm notice that the animal will be destroyed, sold or otherwise disposed of,
- The costs for which an owner is liable, and/or,
- The costs that an owner must pay before the animal is returned to the owner.

When a Veterinarian Could Be Called to Testify

If and when the removal of the animals is disputed to BC FIRB by the guardian, the attending veterinarian could be called to present their evidence and speak to their submitted report. The BC FIRB hearing is done via a teleconference at a scheduled date and time and thus does not require in person attendance. In most cases, the BC FIRB representative(s) will decide to hear the veterinarian's testimony at a time that is convenient for them on that day.

During the hearing, each witness (including the veterinarian) will answer questions from the BC SPCA's legal representative, the appellant (the guardian who is making the appeal) or their legal representative (if they choose to obtain a legal representative) and the BC FIRB's representative. Each witness will only be needed for their testimony and questioning and will not be required to be present for the entire hearing.

During the veterinarian's testimony, they will be asked to speak to their submitted veterinary report. **The submitted report should describe your observations of the animals and their living conditions - it should be based on your professional opinion and be backed up by facts and evidence.** Ensure that you are familiar with your report and can speak to each of the animals examined and their noted distress.

Ensure that you are confident in your findings and your recommendations. Keep any personal opinions out of your report and testimony; it may affect BC FIRB's opinion of your transparency of the case. Remember, you are considered an expert witness and have been called to speak in regards to your professional opinion.

Veterinarians are also very important key witnesses in court for animal cruelty related charges. Court hearings can take place months to years after examining the animals, so ensure that all of your notes and reports are detailed and would aid in the recollection of your observations at the time of the examinations. Much the same as BC FIRB, but this time in front of a judge, each witness would be called forward to speak to their observations and evidence under oath. Veterinarians will be asked to submit a CV and to speak to their credentials and expertise that would classify them as an expert witness.

If you are required to testify at BC FIRB or in court, BC SPCA staff members and/or attorneys will assist you in preparing and knowing what to expect.

BC SPCA Shelter Medicine Protocols and Practices

If animals are removed and brought to BC SPCA sheltering branches, our standard operational protocols take effect. The BC SPCA has health, welfare, handling, and biosecurity protocols that apply to all animals entering our shelters. The BC SPCA uses low-stress handling practices. These include but are not limited to: not scruffing cats; minimal restraint; keeping cat carriers covered, elevated, and away from dogs; offering soft and/or non-slip surfaces during examinations; not using "dorsal hypnosis" on rabbits; and using positive reinforcement and gentle handling. (See references for low-stress handling resources including a book/DVD that you can borrow from your local BC SPCA branch).

If you are working on a case involving more than 5 adult animals from a single property, Operations (Animal Health) and CID will already have a written plan in place for biosecurity and population-level infectious disease screening. This plan will be based on information from a form we use to assess the property and animals during the investigation (see **Appendix A: CID-Ops Animal Inventory Form**). Please follow the plan, and direct any questions to your designated BC SPCA contact person.

Animals from CID investigations often have extensive individual mental and physical health challenges. We also deal with multiple large-scale cases each year involving groups of 10-100+ animals. Animals who are part of these cases often come from crowded, unsanitary environments.

Common conditions in animals from large-scale cases or poor environments include:

- Infectious disease: viral, fungal, bacterial, and parasitic infections including parvovirus, upper respiratory infections, ringworm, giardia, and helminth infestation
- Untreated medical problems: grooming-related (severe matting, skin infections, overgrown nails), breeding-related (mammary tumours, pyometra, metritis), housing-related (nail and orthopedic conditions from poor flooring and confinement), other (untreated injuries, bite wounds, dental disease, etc.)
- Behaviour problems: lack of socialization, fear/phobias, aggression, separation-related issues, lack of housetraining, decreased trainability, and decreased ability to cope with novel situations

Individualized biosecurity plans for each case are formulated as information is gathered. **In general, at the outset of most cases, particularly large scale cases, full Personal Protective Equipment (gowns, gloves, caps, shoe covers) (PPE) should be worn and changed in between groups or animals or individual animals as indicated.** The purpose of this is 1) to protect personnel from zoonotic infectious disease 2) to prevent transmission of infectious disease between animals and 3) to provide assurance that animals were not exposed to infectious disease originating from BC SPCA staff/ animals/ facilities during the course of the removal and transition into the shelter system.

In the case of suspected or confirmed population infectious disease, population diagnostic sampling will likely be ordered by a BC SPCA Animal Health veterinarian. Examples of this include:

Condition Suspected	Sample Required	Diagnostic Test
Canine Infectious Respiratory Disease Complex (Canine Cough, CIRDC)	Conjunctival/pharyngeal or nasal swabs (individual samples from a subset of animals)	PCR
Feline URI	Conjunctival/pharyngeal swabs (individual samples from a subset of animals)	PCR

Giardia	Feces (individual or pooled by group)	Ova&Parasites by centrifugation, Giardia ELISA
Ringworm	Hair (toothbrush sample +/- hair pluck): individual animals with lesions or every animal in group	In-house culture PCR

If you are asked to help take samples and are unsure of the proper sample requirements or procedure, ask your designated BC SPCA contact for assistance. Usually, we will run population level diagnostic testing through our Idexx shelter medicine account for faster, centralized results. The purpose of this diagnostic testing is 1) to identify infectious disease present in the population and determine appropriate treatment plans and 2) to document levels and types of infectious disease present for the purposes of the case.

Shelter medicine diagnostics and treatment recommendations may differ from private practice. As an evidence-based organization, the BC SPCA relies on internal and external data and references to formulate our protocols, and these are re-evaluated as new information becomes available.

BC SPCA Animal Health veterinarians maintain a Veterinarian-Client-Patient Relationship (VCPR) with all BC SPCA shelter facilities and populations. This VCPR enables the use of biologicals and pharmaceuticals for the prevention and treatment of infectious diseases 'per protocol.' Examples of this include intake vaccines and internal/external parasite control, diagnostic sampling and treatment (cultures, lime dip, itraconazole) procedures for ringworm, and recommendations for treatment of URI (i.e. viral- supportive care, bacterial- doxycycline). Please see **Appendix B: Summary of Common Shelter Medicine Treatment Protocols**.

Animal Health protocols are typically limited to prevention and treatment of infectious disease. While Animal Health veterinarians may offer support to branches and CID in decision-making, interpreting veterinary records, and recommendations for discussion with the treating vet, they will not prescribe individual medications or order diagnostics for individual conditions in animals they have not personally examined.

We also have general protocols and standards of care around things like pain management and dental disease. We err on the side of providing pain management if a condition is confirmed or suspected to be painful. For dental conditions, we follow the same guidelines as the CVBC Dental Slideshow for registrants (currently unavailable from the CVBC; please contact us for more information). Please see **Appendix C: Dental Decision-Making Tree** for how dental conditions should be managed in shelter.

Veterinary Examinations, Diagnostics, and Recordkeeping

At intake, all animals entering BC SPCA shelters receive a basic physical check by a trained staff member, and then are sent to a veterinarian if any concerns are identified. We have standard forms for this. If you are conducting examinations, you may be asked to use this standard form (see **Appendix D: BC SPCA Physical Examination Intake Forms**). For most cruelty cases, every animal entering custody will require a full veterinary examination as close to intake as possible.

If you are conducting examinations at your practice facility, in the field, or if the examinations are not part of the intake procedure, you may use whatever medical records system you prefer but be thorough and objective. All medical records must be sent to the Lead Investigator upon completion. For examinations and assessments conducted in the field, you may be able to dictate your findings to a designated BC SPCA staff member. Be sure to make notes as needed if you will require additional information to complete your records/report. You may wish to bring an RVT or VOA with you to help

you; please check with the Lead Investigator prior and help ensure that the RVT or VOA is familiar with this handbook.

If you are helping triage animals in the field, in addition to helping determine whether animals are in distress under the PCA Act, you may be asked to identify:

- Animals in critical distress (see **Appendix I: Critical Distress Protocol**)
- Animals requiring immediate veterinary care
- Animals requiring veterinary care within 24 hours
- Animals requiring veterinary care within 72 hours

Physical examinations should be thorough and include:

- **Description of the environment, if you are working on a case in the field.** Include details of the animal(s)' housing/elimination areas, bedding, food, water, level of sanitation, and other items present. Everything should be photographed and/or videoed by a designated BC SPCA photographer prior to being touched or moved.
- **Signalment and identifying features (tag, microchip, tattoo).** Often, a case # and animal # are already assigned. Be sure these match the animal you are examining. In large scale cases temporary ID (such as band collars) should be placed prior to or as the animals are examined.
- **Description of general demeanor and behaviour.** Decreased level of consciousness, fear, and pain are of particular importance.
- **Body condition score and weight.** Use the Purina 1-9 scale for companion animals (cats, dogs, small mammals) and the Henneke 1-9 scale for horses. A 1-5 scale can be used for donkeys, mules, and other farm animals. See **Appendices E (Purina), F (Henneke) and G (NFACC- Donkeys and Mules)** for further information.
- **Complete physical examination.** Be sure to check the mouth and feet and describe the haircoat. Note any repetitive injuries, scars, and wounds. If blunt trauma is suspected, shave the area for inspection.
- **If pain is found or suspected,** note the location and pain score (0-4). **See Appendix H: Pain Scales**.
- **Note other types of discomfort:** hunger, thirst, breathlessness, nausea, pruritus, mammary engorgement, fear, anxiety, panic.
- Photographs: if you are working on a warrant or case where BC SPCA staff are present, there should be a designated photographer. **Do not take photos without checking with the Lead Investigator.** Check any photos you have requested to ensure your area of concern is clearly visualized.
- Situations may arise where you are working on a case in your practice or there are no BC SPCA staff present. If there is no designated BC SPCA photographer, you should take photos and/or video to document your examination.
    - Photos should include: Animal ID (take several photos including at least one with animal ID number visible), multiple views of animal, close-ups of lesions, injuries, matting, etc. Use a ruler, scalpel handle or other common item (coins, etc.) for scale if needed.
    - Videos are particularly useful if the environment is notable, where behaviour observations are critical (physical and sexual abuse, harsh training cases) and for gait,

respiratory, and other potentially uncomfortable/ painful problems that can be hard to describe.

- Keep a log of photos taken, date, time, and by whom. Do not delete any photos in a series, even if blurry (file numbers should be continuous). Photo and video files should be kept in a secure area or appended to the electronic medical file and shared with the Lead Investigator.
- **Never** share the photos with anyone else, post them on social media, or allow them to be kept in an unsecured location.

Diagnostic Testing

Diagnostic testing may be required during a cruelty investigation for the following reasons:

- To determine a plan for an individual animal
- To determine a plan for a group of animals (see above, BC SPCA Shelter Medicine Protocols and Practices)
- To document evidence for the case

For individual animal recommendations, document all recommendations. **The Lead Investigator must consent to all testing.**

You may be asked to collect and hold blood, urine, feces, or swabs for possible future testing. Tests requested to document evidence for the case may include: survey radiographs (to look for trauma, repetitive injury, foreign objects); fecal testing (DNA testing or to evaluate for parasite burdens or foreign material); swabs of the mouth, wounds, or genitals (DNA testing); and samples of blood, urine, or vomit (toxicity and starvation cases). **It is always better to err on the side of collecting samples at the time of initial exam.** Please see **Appendix N: Recommended Diagnostics for Cruelty Cases by Type.**

All evidence must follow a chain of custody (chronologically documented from time of collection to time of disposition). The animal, samples, test results, photos, and records are all evidence. Samples should be kept in a locked area and a log should be kept of who has accessed them.

Anything that came “with” the animal(s), e.g. collars, tags, foreign material, shaved matts, nail clippings, and entomological evidence should be packaged, labeled, and saved for the Lead Investigator. See Appendices J, K (Entomological Evidence) and Appendix N.

Recordkeeping Communication and Timing

If animals are entering custody, we will need the findings from the initial physical examination that are relevant to their future care ***as soon as possible (within 24 hours)***. These can include notes and records in draft form. Completed medical records and test results should be sent to the Lead Investigator as soon as they are completed. Be very careful to only include known facts and confirmed findings in initial notes/records (do not make conclusions based on conjecture as, if these differ from your final report, that must be explained). We may eventually need a full report with conclusions, but you will have more time to complete this.

Medical records should be thorough and objective. If you are using a form-based system, enter N/A, not examined, etc. in sections that do not apply. Do not leave any sections blank. Correct errors with a single line through the entry and initial.

If you are not the first veterinarian to assess the animal, be sure to ask for and review any prior medical records. Many recommendations are subjective, for example “needs dental within 3 days, must be on pain meds and antibiotics prior to dental” vs “needs dental within 7 days, feed soft food only, no meds.” Unfortunately, if these two conflicting recommendations appear on medical records

generated one day apart, it can cause problems both for the care of the animal and for the case. Please think very carefully before writing something in a record that directly contradicts a previous veterinarian's findings or recommendations (unless it is easily explained, like "dental pain now controlled on pain meds"). You may be asked to explain it at BC FIRB or in court.

If you are working on animals who already have shelter medicine plans in place including drugs prescribed via population protocols, such as "doxycycline for bacterial URI cases" or "fenbendazole for giardia cases," please do not prescribe a different medication or direct staff not to give the medication unless there is an individual contraindication. If you do recommend a different medication, you may be asked to confer with an Animal Health veterinarian to discuss the risk/benefit of deviating from the shelter medicine plan.

If you suspect or identify a reportable disease, you are required to notify provincial authorities (see link in **References).** Please discuss with the Lead Investigator to assure you are able to do this in a way that does not compromise the case.

Reports

In addition to your medical records and notes, you may be asked for a formal forensic report. This report summarizes all of your findings and conclusions and is written *for a lay audience* (judge, jury, attorneys, defendant/appellant, etc.). Medical terminology can be used in the sections outlining examination findings but for the summary and conclusions, lay terminology should be used. We are often under external timelines to submit reports for hearings so reports should be submitted as soon as possible. The Lead Investigator will advise you of the case timeline.

Formats vary but these fall under three categories: individual examination/health reports, population examination/health reports, and expert opinion reports. See **Appendices O to S** for examples of all three types of reports.

In your report, the following general information should ideally be included (non-applicable sections can be omitted). Refer to **Appendix M: BC SPCA Format for Veterinarian Expert Report**.

- **Heading:** investigating agency, lead investigator, case #, veterinarian contact info, examination date
- **Animal information:** signalment, coat pattern, distinguishing marks, ID (if age estimate, include basis for determination). If multiple animals, summary of # animals by species.
- **Statement of qualifications**
- **Purpose of report**
- **Facts and Assumptions**
    - Reason for exam
    - Method of arrival, list of material associated with animal(s)
    - Crime scene/ forensic findings provided by investigators including summary of photos, videos, weather reports, etc.
    - Known medical history
    - Key: explain medical abbreviations used
    - Definitions of medical terminology used including BCS system
    - Examination findings (physical exam, procedures done, rad results, photos/diagrams, medical treatment and results). If multiple animals, list each or by group.
    - Additional documents can be included as appendices (photographs, medical records, etc.)
- **Summary of findings**: starting here, *lay terminology* should be used
    - Estimate time of injury or disease if possible, include basis for estimate
- **Conclusions** ("Opinion" section in Format for Veterinarian Expert Report)
    - Tie everything together

  - Can include your medical opinion here including degree of certainty/probability- be careful about making statement of absolute certainty unless confirmed
  - If possible, provide your opinion on the duration of the "distress" or how long it would take for an animal to get to the condition you observed as this is a key part of both any civil dispute or criminal proceeding.
  - Address everything in the Summary section and explain how each conclusion was made
  - Know the language of the PCA Act and use that language to make conclusions in this section (describe how the 18 signs of distress apply)
  - Educate, clarify and explain necessary points and process (i.e. starvation, confinement, emotional distress)
  - Discuss pain and suffering
  - **Do not** comment on the "rights or wrongs" of the person accused or speculate about anything that has not been discussed with the Lead Investigator.
- **Finalization:** Vet name, signature, date prepared

Necropsies

Forensic necropsies of deceased animals who are part of cruelty investigations are nearly always performed by the provincial Animal Health Centre (AHC). In some cases, you may be asked to perform a field necropsy and take samples to be transported to the AHC or another lab. You may be asked by the Lead Investigator to assist in filling out requisition forms and/or packaging and shipping remains to the AHC. More information: http://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/animals-and-crops/animal-health/pathology-necropsy

References

Merck, M. D. (2012). *Veterinary Forensics*. John Wiley & Sons.

Miller, L., & Zawistowski, S. (2013). *Shelter medicine for veterinarians and staff*. Ames, IA: Wiley-Blackwell.

Yin, S. (2012). *Low stress handling of dogs & cats creating the pet-friendly hospital, animal shelter, or petcare business.* Davis, CA: CattleDog Publ.

http://www.ivfsa.org/

http://www.vin.com/members/cms/project/defaultadv1.aspx?id=7786097&pid=17441& (Rounds by Dr. Melinda Merck, topic is assessing emotional/mental suffering in a legal context)

https://fearfreepets.com/

https://lowstresshandling.com/

https://www.canadianveterinarians.net/documents/a-code-of-practice-for-canadian-cattery-operations

https://www.canadianveterinarians.net/documents/Code-of-Practice-for-Canadian-Kennel-Operations

https://www.ccac.ca/Documents/Standards/Guidelines/Vol2/reptiles.pdf

https://www.forensicscience.ufl.edu/veterinary/programs/graduate-certificate/

https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/animals-and-crops/animal-health/reportable-notifiable-diseases/reportable-diseases

Appendices

A: CID-Ops Animal Inventory Form

B: Summary of Common Shelter Medicine Treatment Protocols

C: Dental Decision-Making Tree

D: BC SPCA Physical Examination Intake Forms (Canine/Feline and Small Mammal)

E: Purina Body Condition Scoring System (1-9)

F. Henneke Body Condition Scoring System (1-9)
http://animal.ifas.ufl.edu/youth/horse/documents/BCS/Henneke-BCS-Chart.pdf

G. Donkey and Mule Body Condition Scoring System (1-5). NFACC Equine Code of Practice (see Appendix E) http://www.nfacc.ca/codes-of-practice/equine-code#appendixe

H: Pain Scales: Canine, Feline, Equine Acute Pain Scales

http://www.vasg.org/pdfs/CSU_Acute_Pain_Scale_Canine.pdf

http://www.vasg.org/pdfs/CSU_Acute_Pain_Scale_Kitten.pdf

http://csu-cvmbs.colostate.edu/Documents/anesthesia-pain-management-pain-score-equine.pdf

I: Critical Distress Protocol

J: Use of Forensic Entomology in Animal Cruelty Investigations (Dr. Gail S. Anderson)

K: Collection of Insect Evidence Form (Dr. Gail S. Anderson)

L: Reptile Standards of Care (Dr. Adrian Walton, developed for BC SPCA using published references)

M: BC SPCA Format for Veterinarian Expert Report

N: BC SPCA Recommended Diagnostics for Cruelty Cases by Type

O: Individual Examination Report: Dr. Adrian Walton (five canines)

P: Individual/Population Examination Report: Dr. Mark Steinbache (multiple horses)

Q: Population Health Report: Dr. Emilia Gordon (59 cats and 16 dogs, infectious disease)

R: Expert Opinion Report: Dr. Rebecca Ledger (individual canine, psychological distress)

S: Expert Opinion Report: Dr. Gail Anderson (individual canine, entomology)

Questions

Please contact Shawn Eccles (seccles@spca.bc.ca, CID) or Dr. Emilia Gordon (egordon@spca.bc.ca, Animal Health) with any questions about the application of this information.

Appendix A: CID-Ops Animal Inventory Form

BCSPCA

CID-Operations Animal Inventory Form

Date:	**File#:**	**Officer:**

LOCATION	**ENVIRONMENT**	
City: ❑Photos taken	**Food** ❑None present ❑Contaminated/Inedible Notes (type of food):	**Water** ❑None present ❑Contaminated/ not potable ❑Frozen
	Food/Water offered in: ❑ (Food) On ground ❑Bowls ❑Troughs ❑Other	

Type	**Sanitation**	**Substrates**			
❑Urban ❑Suburban ❑Rural ❑Farm ❑Remote/Reserve ❑Other Notes:	❑Feces accumulated ❑Urine accumulated ❑Unsanitary environment Notes:	**Living Space** ❑Carpet ❑Cement ❑Bare floor ❑Dirt ❑Straw ❑Newspaper ❑Fabric	**Bedding** ❑Carpet ❑Cement ❑Bare floor ❑Dirt ❑Straw ❑Newspaper ❑Fabric	**Elimination** ❑Carpet ❑Cement ❑Bare floor ❑Dirt ❑Straw Notes: (litter type) (#litterboxes)	❑Newspaper ❑Fabric ❑Household debris ❑Litterbox ❑Bathtub ❑Other:

ANIMAL COUNT AND GROUPING

Live Total		**Live groups by area** (# animals, species, breed, area type, how long present) (include all known information)			**Deceased Total**	
Species	Count	**Area**	**Area**	**Area**	Species	Count
1.					1.	
2.					2.	
3.		**Area**	**Area**	**Area**	3.	
4.					4.	
5.					5.	
6.					6.	

Original purpose of animals

❑Companion	❑Breeding	❑Other commercial purpose
❑Working	❑Fighting	
❑Food	❑Rescue	Notes:

HOUSING

Shelter	**Building Type**	**Confinement**	**Amount of time under current confinement:**	❑Hoarding component ❑Inadequate ventilation
❑Adequate ❑Inadequate ○Heat ○Cold ○Dampness	❑Detached home ❑Multi-unit home ❑Barn ❑Trailer ❑Garage ❑Vehicle ❑Boat **Other:**	❑Outdoor only ❑Indoor only ❑Kennel/crate ❑Tether ❑Stall ❑Yard ❑Free-roaming **Other:**	**Notes:**	**Ammonia level (if known):** _____ **Estimated temperature range:** _____

BCSPCA

CID-Operations Animal Inventory Form

ANIMAL BEHAVIOUR				
# Unsocialized/feral: _____ **# Aggressive:** Humans _____ Same species_____ Other species _____ **Notes:**	**Handling** ❑Comfortable/easy ❑Fearful ❑Resistant ❑Unable to handle ❑Catchpole/snare needed ❑Net needed ❑Trap needed ❑Hard to catch/trailer Notes:	**Training history** ❑Physically harsh ❑Verbally harsh ❑Prong collar ❑Choke chain ❑Electronic collar ❑Electronic prod ❑Fighting equipment (treadmill, break stick, etc.) Other: Known transport history/details:	**Other history** ❑Housebroken ❑Kids in home ❑Others in home/known interactions: ❑Abnormal/stereotypical behaviour present ○Pacing ○Circling ○Other:	**Group dynamic** ❑Fighting (describe): ❑Predation (describe): ❑Competition for essential resources (describe): Other/Notes:
ANIMAL HEALTH (applies to LIVE animals)				
# Underweight animals/ BCS of worst _____ **# Overweight animals/BCS of worst** _____ **Overall BCS info for large group:**	**Physical Neglect** ❑Starvation/Malnutrition (known history) ❑Emaciation ❑Matting ❑Maggots ❑Urine scald ❑Overgrown nails/hooves ❑Bumblefoot Other neglect/discomfort/pain (describe):	**Physical Abuse** ❑Blunt force ❑Sharp force ❑Projectile ❑Sexual Other:	**Untreated Problems** ❑Injury (describe): ❑Disease (describe): ❑Suspect *contagious* disease (describe): ❑Suspect *zoonotic* disease (describe):	**Medical History** Note vaccines, medical treatment by owner or by vet:
POI Information				
❑Likely to surrender ❑Likely potential seizure on Date: _____ ❑Potential for staged intake (describe): ❑Potential for guardian to keep animals with support (i.e. spay/neuter help-describe):			**Other relevant history that affects animals** (previous seizures, history with law enforcement, etc.):	

Appendix B: Summary of Common Shelter Medicine Treatment Protocols

BC SPCA Shelter Medicine Quick Reference: Treatment of Common Infectious Conditions

This Quick Reference Guide is intended to supplement existing protocols and SOPs and is limited to common bacterial, fungal, parasitic, and viral diseases that can affect individuals and populations entering shelters or in shelters. Additional information can be found on the Staff Portal (Adoptability Guidelines and comprehensive ringworm, sanitation, Idexx testing, and other protocols). Please share this document with community vets providing care for shelter animals, and encourage them to contact Dr. Emilia Gordon directly with any questions at egordon@spca.bc.ca or 604-506-2214.

Note on the use of prescription medications: With the exception of treatment "per protocol" or in consultation with Animal Health for uncomplicated parasitic diseases and ringworm in animals confirmed or suspected to have these conditions, **all shelter animals requiring medications must be examined by a community vet** and have medications prescribed for them. This includes animals with canine cough, URI, and various skin conditions not confirmed as ringworm, because there can be many causes of the same symptoms. **Under no circumstances may shelter staff "prescribe" or start antibiotics or pharmaceuticals, including eye and ear medications, without a veterinary exam.** Prescription medications for in-shelter use may not be sent home with adopters, but can be sent home with fosters. If medication is sent home with an adopter, it must be individually prescribed and labelled for that animal by a community vet. For all meds, please use a consistent routine that includes low stress handling and canned food/treats given before and after meds.

Condition	Common Clinical Signs ("symptoms")	Diagnostics	Treatment and Duration	Biosecurity	Follow Up and Notes
Dermatologic					
Demodex (canine)	Patchy hair loss, especially on face and extremities. Usually not crusty or itchy unless secondary infection present. More common in puppies or dogs with underlying medical conditions.	*Skin scraping/hair pluck* by vet (typically done in-house) Secondary infections and underlying conditions may be present and may require additional diagnostics (if a feline case is suspected [rare] contact AH as it's contagious and treatment is different)	First choice: **Simparica** orally once monthly until two consecutive negative skin scrapes 30 days apart (can be ordered from hospital) (only for dogs over 6 months of age) Other options: Nexgard orally once monthly (> 8 weeks of age), Bravecto orally once every 3 months (> 6 months of age), Ivermectin daily (caution in herding breeds, check with DVM for dose)	Not contagious. Standard handling and housing procedures apply.	Can be adopted with waiver and note for adopter to continue treatment at their expense.
Ear Mites	Very itchy ears with clumpy red-brown	*Ear swab*, otoscopic	**Revolution** if > 4 weeks of age. 6 mg/kg (cats), 12 mg/kg	Treat all in-contact animals of same	Common in kittens, cats, rabbits. Very

Condition	Common Clinical Signs ("symptoms")	Diagnostics	Treatment and Duration	Biosecurity	Follow Up and Notes
	discharge. Most common in kittens, then cats, then rabbits/dogs. Suspicion should increase in groups of young animals with the same symptoms. Very rare in individual dogs- all dogs with itchy/red ears or discharge should see a DVM for exam.	examination by vet If ear mites are strongly suspected or confirmed in a group of animals, all animals don't have to be swabbed Secondary infection may be present and require additional testing/treatment	(rabbits). Use dosing chart (double volume for rabbits). Repeat in 14 days. If ears are full of debris, clean gently with OTC ear cleaner or as directed by DVM. DO NOT CLEAN EARS FOR 14 DAYS AFTER APPLYING REVOLUTION. Alternate treatment for cats: Ivermectin at 300 micrograms per kg once a week for 3 weeks. (Dilute Ivomec 1:9 with propylene glycol (OTC) yielding a solution for in-shelter use of 1000 mcg/ml. 1 ml diluted solution treats 3.3 kg of cat.)	species. Clean/launder cleanable items and discard noncleanable items at time of each treatment. Do not house communally with animals from other groups until treatment course complete.	rare in dogs. Dogs should never be assumed to have ear mites. Can be adopted with waiver and note for adopter to continue treatment at their expense.
Fleas	Itchiness, especially of rear half of body (often concentrated at base of tail/lower back). Cats may have small crusted bumps around face/neck. Live fleas or flea dirt nearly always seen.	Visual exam by branch staff or DVM, flea combing	**Revolution** if > 4 weeks of age. Label dose of 6 mg/kg. See dosing chart. All dogs and cats over 6 weeks of age should receive Revolution at intake. Repeat monthly if fleas persist or ongoing exposure to an outdoor environment with possible fleas/ticks (yards, foster home, etc.) If under 4 weeks of age, can give *1 drop* of Advantage if 0-0.5 kg and *2 drops* of Advantage if 0.5 kg- 1.0 kg.	Treat all in-contact animals of same species. Clean/launder cleanable items and discard noncleanable items at time of each treatment.	Secondary conditions such as flea allergy, rodent ulcers (cats) may require additional treatment.

Condition	Common Clinical Signs ("symptoms")	Diagnostics	Treatment and Duration	Biosecurity	Follow Up and Notes
			Drops can be measured from a standard 1 cc or 3 cc syringe with no needle. Bathing with dilute soap or shampoo and manual removal should be done first if many fleas are present. Alternate medications: many but Revolution is our default. If available, dogs can receive Simparica 2-4 mg/kg orally instead (note that tablets can be combined but not split).		
Lice	Itchiness (may be mild or minimal). Brownish-white lice or white nits visible on hair shafts. Common in groups of animals and more common in younger animals.	Visual exam by branch staff or DVM *Microscopic exam* of hair for nits and/or lice	**Revolution** if > 4 weeks of age. Repeat 1 month. Label dose of 6 mg/kg. See dosing chart. All cats and dogs over 6 weeks of age should receive Revolution at intake.	Treat all in-contact animals of same species. Clean/launder cleanable items and discard noncleanable items at time of each treatment. Do not house communally with animals from other groups until treatment course complete. Lice are species-specific and not contagious to humans.	Eggs (nits) will be visible for several weeks after treatment. Can be adopted with waiver and note for adopter to continue treatment at their expense.

Condition	Common Clinical Signs ("symptoms")	Diagnostics	Treatment and Duration	Biosecurity	Follow Up and Notes
Ringworm	Hair loss and crusting, often around face, ears, and feet. May glow under Woods lamp. However - can look like anything including masses, abscesses, allergies etc.	*Fungassay (dermatophyte fungal culture):* through BC SPCA Hospital (see toothbrushing protocol) (all suspect cases) *Idexx RINR PCR*: for new suspects with lesions (see SOP) (sent out through your vet but our account can be used) Weekly toothbrush cultures should be taken at greatest possible lime dip interval (i.e. if lime dipping Tues and Sat, take samples on Sat morning before dipping)	Lime Dip twice weekly per protocol (note that strength is double what is listed on bottle label). *Do not lime dip puppies/kittens under 2 weeks of age <u>Itraconazole</u> (must be brand name Sporanox or Intrafungol, no generic or compounded products) • Cats, kittens, nursing dogs, puppies, small mammals: 5 mg/kg orally once daily x 21 days, then 1 week on/ 1 week off • Dogs, puppies over 12 weeks: 10 mg/kg orally once daily x 21 days, then 1 week on/ 1 week off *Do not give itraconazole to pregnant animals, puppies/kittens under 6 weeks, nursing cats/dogs with babies under 6 weeks, or nursing rabbits with babies under 3 weeks	***Report to Animal Health*** Infected or suspect animals must be promptly isolated. Highly contagious to humans and other animals. Exposed animals will need to be quarantined and possibly lime dipped. Full PPE must be used (caps, gowns, gloves, shoe covers). Do not use footbaths. Standard AHP dilution applies (1:40) Clean/launder cleanable items and discard noncleanable items (including HPG and scratch pad) at time of each lime dip.	See comprehensive RW protocol on Staff Portal Infected animals may be fostered out in select circumstances (i.e. already in a foster home, under 8 weeks of age, foster to adopt)- contact AH. See waivers for treated and exposed animals on internal site.

Condition	Common Clinical Signs ("symptoms")	Diagnostics	Treatment and Duration	Biosecurity	Follow Up and Notes
			Treat until two consecutive negative weekly fungal cultures		
Scabies (Sarcoptic Mange), Fur Mites	Very itchy especially around ear flaps, face (dogs). May have hair loss, skin irritation, and skin lesions including crusting. Rabbits and rodents with mites may have minimal symptoms or may have itchiness, skin irritation, and scabs.	*Skin scraping/hair pluck* by vet (typically done in-house) In rodents fur mites may be diagnosed "on suspicion" after visual exam	**Revolution** if > 4 weeks of age. 6 mg/kg (cats/dogs), 12 mg/kg (rabbits), 18 mg/kg (small rodents). Use dosing chart (double volume for rabbits, triple for rodents). Repeat in 1 month (cats, dogs) and 14 days (rabbits, rodents). Alternate meds: Simparica, Advantage Multi, Nexgard, Bravecto (ask DVM or AH for dosing info)	Treat all in-contact animals of same species. Clean/launder cleanable items and discard noncleanable items at time of each treatment. Full PPE for 3 days after treatment, wear gloves for 14 days after treatment. Do not house communally with animals from other groups until treatment course complete. May be contagious between species or to humans depending on type.	Can be sent into a home once 3 days have passed after treatment. Can be adopted with waiver.
Ticks	Adult ticks are clearly visible attached to skin or freely moving in hair coat. Most common in dogs. Immature life stages (nymphs) may not be visible- if there	Visual exam Tick-borne infections may be present or a risk; consult treating DVM regarding prevention or testing.	Remove promptly by grasping tick's body and pulling straight out. Because additional tiny ticks may present, treat all animals with visible ticks with	Treat all animals of same species from same origin. Do not house communally until 48 hours after treatment.	Inform adopter that ticks were present at intake and to monitor for signs of illness (over next few months) and take to vet if occur

Condition	Common Clinical Signs ("symptoms")	Diagnostics	Treatment and Duration	Biosecurity	Follow Up and Notes
	is a history or ticks, animal should be treated even if no visible ticks.		medication. Dogs over 6 months: first choice: **Simparica** (single dose) (can replace Revolution dose at intake or can be given with Revolution). Note that tablets can be combined, but not split. Alternate meds: Nexgard, Bravecto Advantix Cats and Puppies under 6 months: **Revolution** (has some activity against ticks)		
Gastrointestinal					
Coccidia	Diarrhea, soft stool, gas, abdominal bloating. In severe cases, may have weight loss, vomiting, inappetance. May progress to death in young kittens or compromised animals. Rabbits may have evidence of liver disease (lethargy, liver enlargement). Most common in young or compromised animals regardless of species. Animals,	*Idexx Fecal Flotation with Giardia (FLTG):* see SOP or *Fecal flotation* (in house by vet) (may be less accurate if centrifuge not used) Treat all animals in population once a case is confirmed Sampling for large groups or screening of large scale cases at intake: Idexx Fecal Flotation with Giardia (FLTG) see SOP Treat all animals in population once a case is	**Baycox** 25 mg/kg orally for puppies, kittens, dogs, and cats (use dosing chart) TREATMENT: Symptomatic animals or confirmed coccidia positive: one dose orally once daily for 3 days. PREVENTION: one dose at intake, then repeat 14 days later if still in our system. Best for kittens and puppies aged 4 weeks to 4 months, but the drug can be given starting as young as 2 weeks if needed. Bathe on first (if possible) and last (very important) day of	Treat all in-contact animals of same species. Clean/launder cleanable items and discard noncleanable items at time of each treatment. Wear full PPE until initial treatment course finishes. Do not house communally or allow direct contact with animals from other groups until treatment	Can be adopted with waiver

Condition	Common Clinical Signs ("symptoms")	Diagnostics	Treatment and Duration	Biosecurity	Follow Up and Notes
	especially adults may have it without showing any signs.	confirmed Sampling for large groups or screening of large scale cases at intake: • Pooled samples from every litter < 6 months • Test >5 adults (ideally 20-50% of the population), prioritize those with diarrhea, weight loss, inappetance etc.	treatment.	course complete. Species-specific, only contagious to same species.	
Giardia	Diarrhea, soft stool, gas, abdominal bloating. In severe cases, may have weight loss, vomiting, inappetance. Seen only in cats and dogs. Most common in dogs with outdoor access and large scale cases.	*Idexx Fecal Flotation with Giardia (FLTG):* see SOP Treat all animals in population once a case is confirmed (do not need to test all) Sampling for large groups or screening of large scale cases at intake: • Pooled samples from every litter < 6 months	**Panacur** 50 mg/kg orally once daily x 5 days to animals over 2 weeks of age Replaces one dose of Strongid Bathe on first (if possible) and last (very important) day of treatment. Note: Panacur available as granules or liquid (see dosing charts). Granules typically easier in cats and small/picky dogs. Granules: Sizes 1 g, 2 g, 4	Treat all in-contact animals of same species. Clean/launder cleanable items and discard noncleanable items at time of each treatment. Wear full PPE until initial treatment course finishes. Do not house communally or allow direct contact with	Can be adopted with waiver Diarrhea from giardia tends to resolve with 2-3 days on panacur; if ongoing animal needs vet exam and may need additional treatment.

Condition	Common Clinical Signs ("symptoms")	Diagnostics	Treatment and Duration	Biosecurity	Follow Up and Notes
		• Test >5 adults (ideally 20-50% of the population), prioritize those with diarrhea, weight loss, inappetance etc. Do not retest after treatment unless individual concerns	g packets (note that each g contains only 222 mg of fenbendazole). Dose to nearest 1/8 of a packet.	animals from other groups until treatment course complete. Companion animal strains thought to be fairly species-specific, but theoretical potential exists for transmission to humans or other species.	
Hookworm	Diarrhea, weight loss, pale gums. More rarely can cause vomiting, inappetance, lethargy, bloating, cough, skin lesions (between toes) and death in heavily parasitized puppies/kittens. More common in young animals. Animals, especially adults, can be infested without any clinical signs.	*Idexx Fecal Flotation with Giardia (FLTG):* see SOP or *Fecal flotation* (in house by vet) (may be less accurate if centrifuge not used) Treat all animals in exposed population once a case is confirmed (do not need to test all)	**Pyrantel (Strongid)** 20 mg/kg (under 25 kg) and 10 mg/kg (over 25 kg) orally once at intake (or at time of diagnosis if not given at intake). Repeat in 2 weeks. For puppies, repeat every 2 weeks until last vaccine at 16-20 weeks of age. Alternative treatments: Panacur, Drontal, Dolpac, others	Treat all in-contact animals of same species. Clean/launder cleanable items and discard noncleanable items at time of first treatment. Good hygiene: promptly clean up stool, wear gloves/wash hands, bathe if fecal soiling, frequent walks, house in double compartment kennels. Zoonotic potential if bare skin exposed to larval worms (walking, sitting where animals have defecated).	Can be adopted with waiver

Condition	Common Clinical Signs ("symptoms")	Diagnostics	Treatment and Duration	Biosecurity	Follow Up and Notes
Panleukopenia (feline)	Most common cause of sudden death in shelter kittens/young cats. Vomiting, inappetance, weight loss, diarrhea, lethargy, and fever may occur. Death can occur with or without preceding clinical signs. Adults may have a more chronic, less severe presentation. Usually occurs in kittens or unvaccinated adult cats.	*Idexx Canine Fecal Snap Parvo test* (swab tonsils first then feces/rectum). Test can be done post-mortem in unfrozen animals. May have false negative rate up to 50% in cats. Vaccine should not cause false positives on Idexx test. If test negative but panleuk suspected: *CBC (complete blood count):* Usually shows low white cell levels, but they may be normal or elevated. Deceased animals with negative test but strong suspicion: *necropsy* See SOP- Management of Panleukopenia Suspects and SOP- Shelter Necropsy Submissions	Infected animals should be promptly euthanized (due to infectious risk, medical budget limitations and inability to treat in-branch). Do not treat.	***Report to Animal Health*** Infected or suspect infected animals should be promptly isolated. Exposed animals should be quarantined for 14 days. Contact AH immediately for assistance with risk assessment. May require stopping intake or closing branch. Use full PPE for infected/exposed animals. Use full PPE in between individual animals in quarantine rooms. Use full PPE in between animal housing areas until risk assessment completed. Do not use foot baths.	All branch staff and managers should be familiar with clinical signs of this disease and what to do if suspected. Often first sign is an unassisted death in a kitten 6-20 weeks. See SOP- Management of Panleukopenia Suspects for more information.
Parvovirus (canine)	Vomiting, inappetance, weight loss, diarrhea (often with blood and foul odour), abdominal pain, lethargy, and fever may occur. May be fatal especially	*Idexx Canine Fecal Snap Parvo test* (swab tonsils first then feces/rectum). Test can be done post-mortem in unfrozen animals. False negative rates vary but occur regularly. Vaccine	Infected animals should be promptly euthanized (due to infectious risk, medical budget limitations and inability to treat in-branch). Do not treat.	***Report to Animal Health*** Infected or suspect infected animals should be promptly isolated. Exposed animals should	All branch staff and managers should be familiar with clinical signs of this disease and what to do if suspected.

Condition	Common Clinical Signs ("symptoms")	Diagnostics	Treatment and Duration	Biosecurity	Follow Up and Notes
	without treatment, but death usually is preceded by clinical signs. More common in puppies and unvaccinated dogs. Rotties, Dobies, and bully breeds thought to be predisposed.	should not cause false positives on Idexx test. If test negative but parvo suspected: *CBC (complete blood count)* Deceased animals with negative test but strong suspicion: *necropsy* See SOP- Shelter Necropsy Submissions		be quarantined for 14 days. Contact AH immediately for assistance with risk assessment. May require stopping intake or closing branch. Use full PPE for infected/exposed animals. Use full PPE in between individual animals in quarantine rooms. Use full PPE in between animal housing areas until risk assessment completed. Do not use foot baths. If an outdoor area of the shelter is known to be contaminated, it cannot be used for puppies under 20 weeks, or dogs < 7 days from intake vaccine, indefinitely. Do not walk suspect dogs. To minimize risk, do not place puppies under 20 weeks or dogs with signs of GI distress in uncleanable outdoor	

Condition	Common Clinical Signs ("symptoms")	Diagnostics	Treatment and Duration	Biosecurity	Follow Up and Notes
				areas.	
Roundworm	Diarrhea, weight loss, vomiting, inappetance, lethargy, bloating (pot belly) and can cause death in heavily parasitized puppies/kittens. More common in young animals. Animals, especially adults, can be infested without any clinical signs.	*Idexx Fecal Flotation with Giardia (FLTG):* see SOP or *Fecal flotation* (in house by vet) (may be less accurate if centrifuge not used) Treat all animals in exposed population once a case is confirmed (do not need to test all)	**Pyrantel (Strongid)** 20 mg/kg (under 25 kg) and 10 mg/kg (over 25 kg) orally once at intake (or at time of diagnosis if not given at intake). Repeat in 2 weeks. For puppies and kittens, repeat every 2 weeks until last vaccine at 16-20 weeks of age. See Strongid Dosing Chart Alternative treatments: Panacur, Drontal, Dolpac, others	Treat all in-contact animals of same species. Clean/launder cleanable items and discard noncleanable items at time of first treatment. Good hygiene: promptly clean up stool, wear gloves/wash hands, bathe if fecal soiling, frequent walks, house in double compartment kennels. Zoonotic potential via fecal-oral route (eggs take 2-4 weeks to become infective).	Can be adopted with waiver
Tapeworm	Usually minimal except for possible irritation of anal area.	Visual detection of proglottids (egg packets, flat and about the size of grains of rice) in feces Rarely detected on fecal testing. If fecal is submitted, send visible worm with sample.	**Cestex (epsiprantel)** Cats: 2.75 mg/kg orally once. Dogs: 5.5 mg/kg orally once. Do not need to repeat. Make sure flea treatment is up to date at or before time of treatment. See Cestex Dosing Chart. Drug currently provided free by Zoetis. Treat: if observed, in animals	Treat all animals of same species originating from same source. In-contact animals don't require treatment if from different sources/location, unless not current on flea meds. No handling precautions	Can be adopted, waiver not needed but may want to notify adopter treatment has been given

Condition	Common Clinical Signs ("symptoms")	Diagnostics	Treatment and Duration	Biosecurity	Follow Up and Notes
			with heavy flea burdens at intake, and cats who are known to hunt rodents. Consider treatment in: animals entering communal housing where stool cannot be individually monitored, animals from areas known to have high tapeworm prevalence Alternative options: Drontal, Milbemax (cats), Profender (cats). These are expensive and Cestex is the first choice.		
Whipworm	Diarrhea, soft stool, weight loss. Diarrhea may have blood/mucus or involve straining. Can cause pale gums, more severe symptoms, or death in heavily parasitized puppies/kittens. More common in young animals. Animals, especially adults, can be infested without any clinical signs.	*Idexx Fecal Flotation with Giardia (FLTG):* see SOP or *Fecal flotation* (in house by vet) (may be less accurate if centrifuge not used) Treat all animals in exposed population once a case is confirmed (do not need to test all)	**Drontal,** single dose orally once. Repeat in 3 weeks and 3 months. Alternative protocol: Give panacur 50 mg/kg orally once daily for 3 days. Repeat the same 3 day course in 3 weeks and in 3 months.	Treat all in-contact animals of same species. Clean/launder cleanable items and discard noncleanable items at time of first treatment. Good hygiene: promptly clean up stool, wear gloves/wash hands, bathe if fecal soiling, frequent walks, house in double compartment kennels. Contagious potential via fecal-oral route (eggs	Can be adopted with waiver

Condition	Common Clinical Signs ("symptoms")	Diagnostics	Treatment and Duration	Biosecurity	Follow Up and Notes
				take 2-3 weeks to become infective).	
Respiratory					
Canine Cough (Kennel Cough)	Dry, non-productive cough that gets worse with tracheal pressure (collar, leash pulling) or barking. May be accompanied by eye/nasal discharge, sneezing, lethargy, fever, and inappetance. Most cases are not severely ill.	Contact AH- most initial cases should have *Idexx CRDD PCR* done (see SOP). Zoetis may cover some costs. If many coughing dogs at initial presentation, sample >5 dogs, ideally 20-50% of population. Case definition: tracheal cough with no obvious cardiac cause, may be accompanied by sneezing, congestion, oculonasal discharge Severe cases may require additional dx/tx (chest rads, etc.)	If viral **(*most cases*):** Supportive care only (Cough suppressants, Cerenia, etc. as rx by local vet). Minimize stress, barking, and pulling on collar/leash (harness, training). If bacterial as determined by local vet: **Doxycycline** 5-10 mg/kg orally once-twice daily x 10-14 days to dogs and puppies over 4 weeks Please note: Unless contraindicated, doxycycline is the best first choice antibiotic.	***Report to Animal Health*** Affected dogs must be isolated (20 feet airspace from other dogs) and full PPE used. They can still be walked in separate area by separate personnel wearing PPE. Risk assessment should be done to divide population into: • Infected (isolate) • At risk/exposed (quarantine x 7 d from exposure) • Not at risk/ unexposed If no designated ISO/quarantine space exists, shelter may have to close to dog intake to	Contact AH about all cases of canine cough. Exposed animals who are not sick may be able to be adopted or fostered out with a Canine Cough- Exposed waiver after consultation with AH. Animals not responding to tx within a few days should be rechecked by a vet.

Condition	Common Clinical Signs ("symptoms")	Diagnostics	Treatment and Duration	Biosecurity	Follow Up and Notes
				create a "clean break."	
Feline URI	Sneezing, eye/nasal discharge, conjunctivitis (usually bilateral), coughing (less common). May have inappetance, lethargy, or dehydration. Calicivirus cases may have oral ulcers. Severe viral cases may have bloody nasal discharge or sneezing.	No diagnostics- treat cases empirically UNLESS • Part of a large group • Individual case not responding to tx • Oral ulcers present *Idexx FURD PCR* should be done in these cases (See SOP). Population: Sample > 5 animals, ideally 20-50% of the population. Case definition: active congestion, sneezing, eye or nasal discharge, coughing, or puffy/red eyes (conjunctivitis) Chronic cases unresponsive to treatment may require additional dx	If viral **(*most cases*):** Supportive care only (Cerenia, pain meds, SQF, etc. as rx by local vet). Minimize stress. Feed variety of palatable foods including canned. Do not use lysine. If bacterial as determined by local vet: **Doxycycline liquid:** 10 mg/kg orally once daily to cats over 4 weeks of age (safe in kittens) x 14 days, consult vet to extend if not resolved at 14 days. ***Do not use doxy pills in cats** If eye meds needed and not already on doxy: Erythromycin, chloramphenicol, or tetracycline ointment in both eyes twice daily x 10 days If already on doxy, wait 48- 72 hrs to start eye meds as oral meds will likely be enough for bacterial conjunctivitis Please note: NO other antibiotics will eliminate common bacterial URI	***Report to Animal Health IF: oral ulcers, suspected calici, coughing, spreading within population, duration/severity greater than usual*** Individual cases not meeting the above do not have to be reported to AH Mild sneezing, clear discharge: keep in place, minimize stress, handle last with handwashing or gloves Oral ulcers, suspected calici, coughing, or severe illness: Move to ISO, Use PPE, contact AH	Unless requiring isolation, affected animals can be adopted or fostered out with URI waiver. Animals not responding to tx within a few days should be rechecked by a vet. Cases where URI is spreading within the population or has unusual severity/duration, large scale cases with known URI in the population, or cases of suspected calici must be reported to Animal Health.

Condition	Common Clinical Signs ("symptoms")	Diagnostics	Treatment and Duration	Biosecurity	Follow Up and Notes
			pathogens.		
Lungworm	Coughing, wheezing, rapid/difficult breathing. Can also have weight loss, lethargy, abdominal bloating, and death (severe cases, especially in young animals). Some cases can be asymptomatic.	Usually diagnosed on *necropsy, fecal floatation, or fecal Baermann.* Several species exist.	Treatment or prevention of Aelurostrongylus (most common feline lungworm seen in our animals): **Revolution** at label dose (6 mg/kg) topically. Repeat every 2 weeks for total of 3 doses. Give in am and monitor closely for rapid/difficult breathing or lethargy after first dose. For other types of lungworm or lungworm in other species consult AH.	All animals in contact or from same place as confirmed or suspected case should be treated. Not directly contagious, normal hygiene practices sufficient.	Because three doses required, animals can be fostered or adopted out with a waiver. If adopted, must follow up with community vet for remaining treatments or be sent home with Revolution individually prescribed labelled for that animal by local vet.
Viral- Other					
Feline Immunodeficiency Virus (FIV)	Highly variable. May be asymptomatic. Acute infections: enlarged lymph nodes, mild oral/ eye inflammation. Chronic infections: signs related to decreased immune system (eye, mouth, respiratory, GI infections) or cancers (enlarged lymph nodes, weight loss,	Screening test*: Idexx Snap FIV/FeLV Combo Test* on small blood sample (ideally blood should be spun down) If positive: CBC/Chem panel to assess overall health, consider confirmatory test (Western Blot, do not use PCR). Test: Individual suspects, animals from multi-cat environments (hoarders,	Apparently healthy, positive cats: No ongoing treatment needed. Ok to place for adoption. Ok to adopt to homes with other cats as long as no fighting. Positive cats with signs of FIV-related illness: euthanize. Do not treat.	Not directly contagious, unless fighting or mating, normal hygiene practices sufficient. Infected cats should be housed and handled in a way that minimizes their risk of shelter-acquired infectious disease. Do not group house positive cats with	Use FIV Positive disclosure for adoption.

Condition	Common Clinical Signs ("symptoms")	Diagnostics	Treatment and Duration	Biosecurity	Follow Up and Notes
	anemia, inappetance, lethargy)	colonies) with known FeLV or FIV in population (test all) Animals from multi-cat environments (hoarders, colonies) with unknown FeLV or FIV population status (test a subset, contact AH for guidance based on group size and risk)		negative cats in shelter due to lack of ability to continuously observe and ensure cats are not fighting.	
Feline Infectious Peritonitis (FIP)	Two forms: <u>Effusive:</u> lethargy, inappetance, weight loss, fluid in abdomen, fever, sometimes difficult breathing (more common in kittens). <u>Noneffusive:</u> lethargy, weight loss, inappetance, fever, possibly enlarged lymph nodes, intestinal/ eye/ neurologic signs (more common form in adult cats). Some purebreds may be predisposed. Often cats develop clinical signs within months after a stressful event or	No single diagnostic test exists. Dx usually made on basis of clinical signs, history of recent stress, results of veterinary exam, and results of basic bloodwork +/- xrays +/- abdominal fluid sampling. Tests for feline coronavirus such as serology and PCR are NOT generally useful in diagnosing FIP and typically are not a good use of medical budget. Contact AH with questions. Necropsy in deceased animals is nearly always diagnostic.	If FIP is highly suspected, the animal should be euthanized. Necropsy will likely provide a definitive diagnosis. The animal may need to be euthanized without a definitive diagnosis. There are some promising treatments for FIP being researched but currently it cannot be treated in shelter.	FIP is not immediately infectious between cats. Standard hygiene and sanitation procedures suffice. There may be a genetic predisposition to develop the mutation that leads to the disease. For this reason, littermates and moms of FIP kittens/cats should be adopted with a disclosure, or if already adopted, their adopters should be contacted and given basic information from the disclosure.	FIP is due to a mutation in a common intestinal virus (feline coronavirus) that most cats get, but most do not get sick.

Condition	Common Clinical Signs ("symptoms")	Diagnostics	Treatment and Duration	Biosecurity	Follow Up and Notes
	change.				
Feline Leukemia Virus (FeLV)	Highly variable. May be initially asymptomatic. Infection suppresses the immune system and can cause cancer, infections, and a number of other problems. Signs may include URI or ringworm that won't resolve, GI or neurologic signs, various infections, enlarged lymph nodes, weight loss, anemia, inappetance, lethargy. May be more prone to FIP.	Screening test: *Idexx Snap FIV/FeLV Combo Test* on small blood sample (ideally blood should be spun down due to potential for false positives on whole blood). If positive: Repeat test using serum or plasma (from blood that has been spun down). Do not run additional confirmatory tests. Test: Individual suspects, animals from multi-cat environments (hoarders, colonies) with known FeLV or FIV in population (test all) Animals from multi-cat environments (hoarders, colonies) with unknown FeLV or FIV population status (test a subset, contact AH for guidance based on group size and risk)	Adult animals who are positive on Snap test performed on serum/plasma should be euthanized without further testing. Kittens under 4 months: false positives are more common, especially if test shows weak positive (nearly all weak positives in young kittens end up being negative). If branch resources allow and everyone involved understands possibility of euthanasia, kittens may be kept in foster and retested 4 and 8 weeks later to determine true status. If persistently negative they can be adopted out. If still positive at 8 week mark they should be euthanized. Exceptions to euthanasia policy for animals diagnosed after a person is attached to them may be made for SPCA and veterinary staff on a case-by-case basis by the branch manager, as long as there are no other cats in the home.	Not easily transmitted, but can be transmitted by prolonged direct contact (sharing litterboxes, food, etc.). Standard hygiene and sanitation practices should suffice.	See FeLV Exposed and FeLV Positive to Negative Disclosures for use in negative cats who are being placed for adoption

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Miller, Lila, and Kate Hurley. *Infectious disease management in animal shelters*. Ames, IA, Wiley Blackwell, 2009.
Miller L, Zawistowski S, eds. *Shelter Medicine for Veterinarians and Staff*. 2nd edition. Blackwell; 2013.

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Canine Parvovirus: http://www.sheltermedicine.com/library/guidebooks/canine-parvovirus

Feline Leukemia: http://www.sheltermedicine.com/library/resources/feline-leukemia-virus-felv

Feline Upper Respiratory Infection: http://www.sheltermedicine.com/library/resources/feline-upper-respiratory-infection-aka-uri

FIP: http://www.sheltermedicine.com/library/resources/feline-infectious-peritonitis-feline-coronavirus-fip-fcov

FIV: http://www.sheltermedicine.com/library/resources/feline-immunodeficiency-fiv

Intestinal Parasites: http://www.sheltermedicine.com/library/resources/intestinal-parasite-control-guidelines and https://www.canadianveterinarians.net/documents/intestinal-parasites-animal-owners

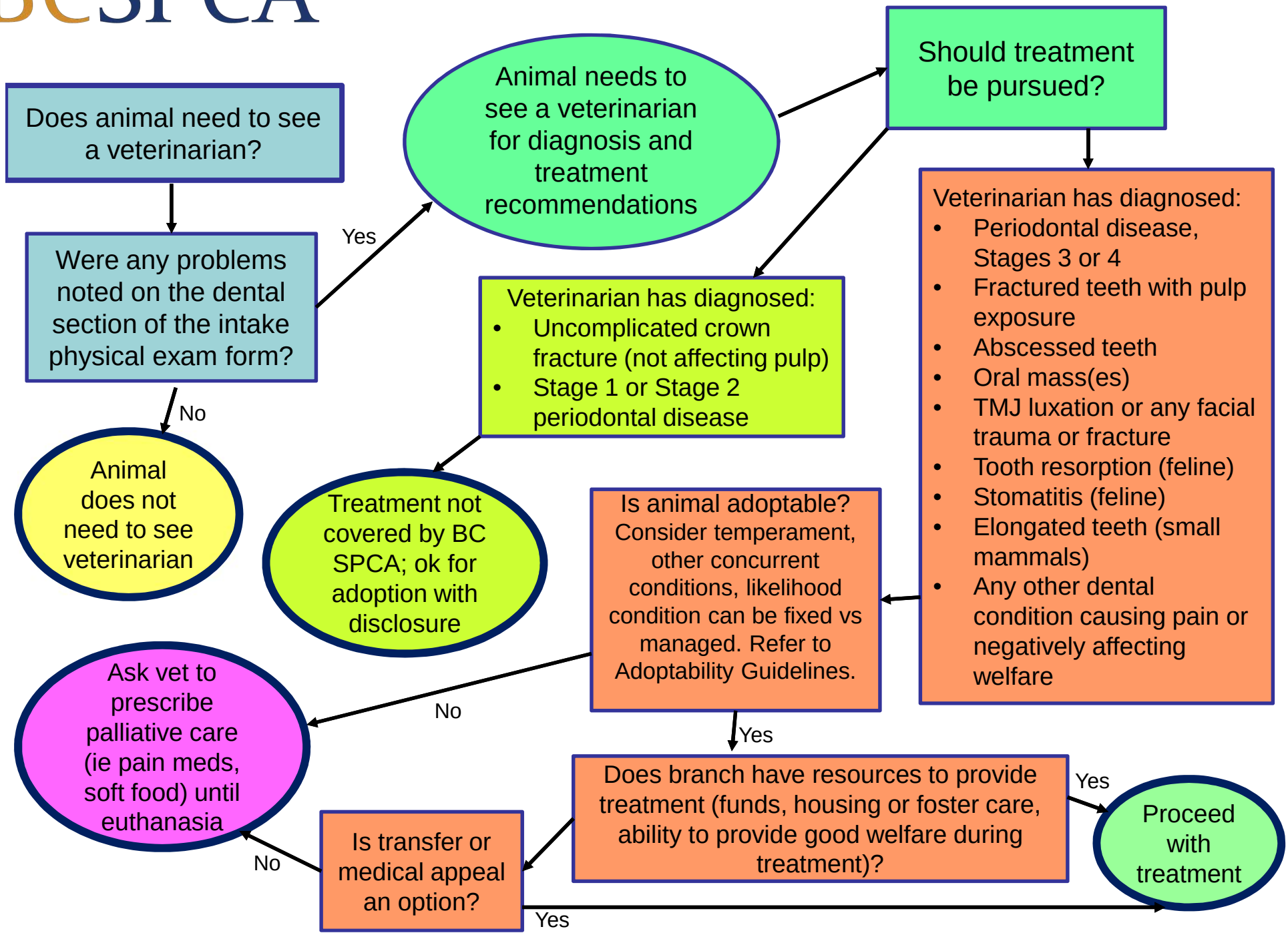
Lungworm (cats): http://www.merckvetmanual.com/cat-owners/lung-and-airway-disorders-of-cats/lungworm-infection-in-cats

Panleukopenia: http://www.sheltermedicine.com/library/guidebooks/feline-panleukopenia

Ringworm and Lime Dip Tips (see also: Ringworm documents on Staff Portal): http://www.sheltermedicine.com/library/resources/ringworm-dermatophytosis and http://www.sheltermedicine.com/library/ringworm-dermatophytosis#Treating

BCSPCA

Dental Decision-Making: Shelter Animals



Appendix D: BC SPCA Physical Examination Intake Forms

BCSPCA

PHYSICAL EXAMINATION INTAKE FORM FOR DOGS & CATS

Date:	**Branch:**	**Exam By (Full Name):**	
ANIMAL INFORMATION			
Name:	**ShelterBuddy ID:**	**Animal Type:** ❑Cat ❑Dog	
Sex: ❑Male ❑Female ❑M/N ❑F/S	**Age:**	**Breed:**	**Colour:**
Coat Length/Markings:		**Tattoo/Microchip:**	
Body Condition Score:	**Weight:** ❑lbs ❑kg	**Hydration:** ❑Hydrated/Normal ❑Dehydrated	
Wood's Lamp Screen: ❑Negative ❑Positive, location:			
Admittance Behaviour: ❑Friendly ❑Fearful ❑Aggressive ❑Depressed ❑Hyper/Excitable ❑Possibly Feral			
Intake Asilomar Status: ❑H (Healthy) ❑TR (Treatable-Rehabilitatable) ❑TM (Treatable-Manageable) ❑U (Untreatable)			

Nose & Throat	**Mouth, Teeth & Gums**	**Eyes**	**Ears**	**Legs & Paws**
❑No visible lesions ❑Nasal discharge ○Left ○Right ○Watery ○Mucoid ○Yellow/Green ○Blood ❑Inflamed throat Other/Comments:	❑No visible lesions ❑Halitosis ❑Broken teeth ❑Loose teeth ❑Tartar build-up ○Mild ○Moderate ○Severe ❑Resorptive lesions ❑Gingivitis ❑Oral ulcers ❑Mass/Lump ❑Loose teeth Other/Comments:	❑No visible lesions ❑Discharge ○Left ○Right ○Watery ○Mucoid ○Yellow/Green/Pus ❑Inflamed ○Left ○Right Other/Comments:	❑No visible lesions ❑Inflamed ○Left ○Right ❑Itchy ❑Painful ❑Mites ❑Mass/Lump ○Left ○Right ❑Discharge ○Left ○Right ○Wax ○Pus ○Brown/Dark Other/Comments:	❑No visible lesions ❑Lameness ❑Stiffness ❑Joint problems ❑Nail problems ❑Declawed ○Front ○Back Other/Comments:
Coat & Skin	**Cardiovascular**	**Abdomen**	**Lymph Nodes**	**Urogenital System**
❑No visible lesions ❑Itchy ❑Inflamed/Redness ❑Hair loss ❑Wounds ❑Parasites ❑Mass/Lump Location(s): Other/Comments:	❑Stethoscope – Normal ❑Gums: ○Normal (pink/moist) ○Abnormal ❑Not examined **Respiration** ❑Normal ❑Coughing/Sneezing ❑Breathing difficulty ❑Not examined Other/Comments:	❑Normal ❑Discomfort or pain with palpation ❑Distended ❑Not examined Other/Comments:	❑Normal ❑Enlarged ❑Not examined **Nervous System** ❑Normal ❑Not examined Other/Comments:	❑Normal ❑Urine scald/Soiled rear-end ***Male:*** ❑Testicle(s) present ○One side ○Both sides ***Female:*** ❑Possibly pregnant ❑Lactating ❑Spay scar ❑Mammary mass/lump Other/Comments:

IMMEDIATELY NOTIFY BRANCH MANAGER OR DESIGNATE OF ANY SERIOUS MEDICAL CONDITION

Vet Exam Required: ❑Y ❑N ❑**Appointment Made** (Date/Time/Location):

BCSPCA

PHYSICAL EXAMINATION INTAKE FORM FOR DOGS & CATS

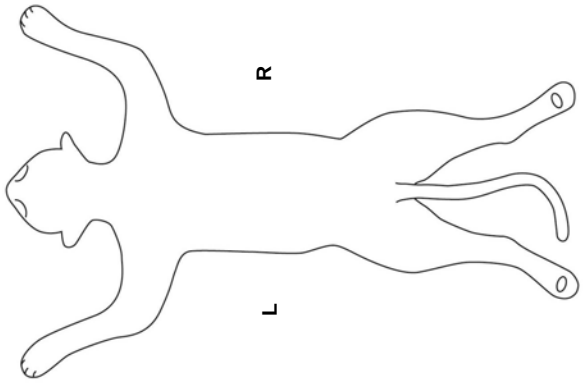
Treatments (ALL treatments and next treatments should be entered into ShelterBuddy within 24hrs of intake.)

Treatment	Date	Next Treatment
DA2PP		
FVRCP (Fel-O-Guard or similar)		
Bordetella/Kennel Cough ❑oral ❑intranasal		
Strongid-T		
Advantage		
Revolution		
Other:		

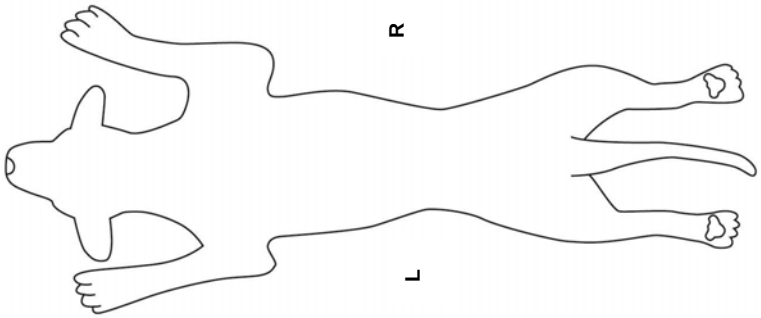
Notes/Treatment Stickers:

Body Map (Note masses, wounds, and lesions)

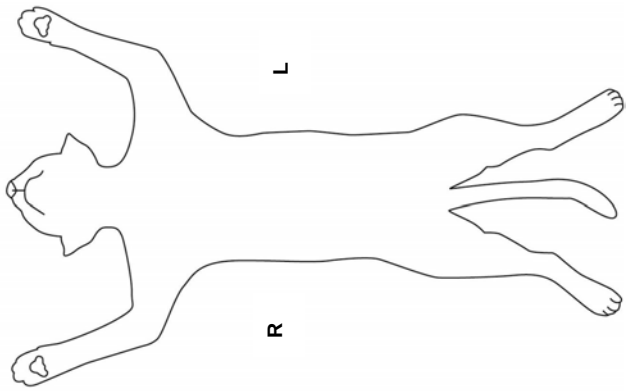
Cat Dorsal



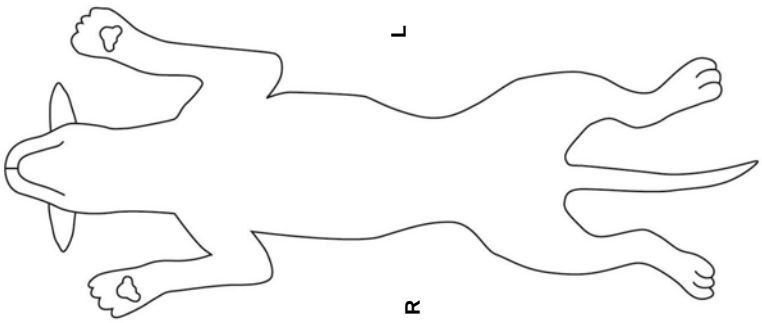
Dog Dorsal



Cat Ventral



Dog Ventral



BCSPCA

PHYSICAL EXAMINATION INTAKE FORM FOR SMALL MAMMALS

Date:	**Branch:**	**Exam By (Full Name):**
ANIMAL INFORMATION		
Name:		**ShelterBuddy ID:**
Animal Type: ❑Rabbit ❑Guinea Pig ❑Rat ❑Hamster ❑Gerbil ❑Other:		
Breed:	**Sex:** ❑Male ❑Female ❑M/N ❑F/S	**Age:**
Colour:	**Coat Length/Markings:**	
Body Condition Score:	**Weight:** ❑lbs ❑kg	**Hydration:** ❑Hydrated/Normal ❑Dehydrated
Tattoo/Microchip (rabbits):		
Wood's Lamp Screen: ❑Negative ❑Positive, location:		
Admittance Behaviour: ❑Friendly ❑Fearful ❑Aggressive ❑Depressed ❑Hyper/Excitable ❑Possibly Feral		
Intake Asilomar Status: ❑**H (Healthy)** ❑**TR (Treatable-Rehabilitatable)** ❑**TM (Treatable-Manageable)** ❑**U (Untreatable)**		

Nose & Throat	**Mouth, Teeth & Gums**	**Eyes**	**Ears**	**Legs & Paws**
❑No visible lesions ❑Nasal discharge ○Left ○Right ○Watery ○Mucoid ○Yellow/Green ○Blood ❑Inflamed throat Other/Comments:	❑No visible lesions ❑Incisors overgrown ❑Drooling/Crusted chin ❑Oral pain ❑Facial swelling or asymmetry ❑Gingivitis ❑Mass/Lump Other/Comments:	❑No visible lesions ❑Discharge ○Left ○Right ○Watery ○Mucoid ○Yellow/Green/Pus ❑Inflamed ○Left ○Right Other/Comments:	❑No visible lesions ❑Inflamed ○Left ○Right ❑Mites ❑Mass/Lump ○Left ○Right ❑Discharge ○Left ○Right ○Wax ○Pus ○Brown/Dark Other/Comments:	❑No visible lesions ❑Lameness ❑Pododermatitis(lesions on flat part of rear legs) ❑Joint problems ❑Nail problems Other/Comments:
Coat & Skin	**Cardiovascular**	**Abdomen**	**Lymph Nodes**	**Urogenital System**
❑No visible lesions ❑Itchy ❑Inflamed/Redness ❑Hair loss ❑Wounds ❑Parasites ❑Mass/Lump Location(s): Other/Comments:	❑Stethoscope – Normal ❑Gums: ○Normal (pink/moist) ○Abnormal ❑Not examined **Respiration** ❑Normal ❑Coughing/Sneezing ❑Breathing difficulty ❑Not examined Other/Comments:	❑Normal ❑Discomfort or pain with palpation ❑Distended ❑Not examined Other/Comments:	❑Normal ❑Enlarged ❑Not examined **Nervous System** ❑Normal ❑Not examined Other/Comments:	❑Normal ❑Urine scald/Soiled rear-end ***Male:*** ❑Testicle(s) present ○One side ○Both sides ***Female:*** ❑Possibly pregnant ❑Lactating ❑Spay scar ❑Mammary mass/lump Other/Comments:

IMMEDIATELY NOTIFY BRANCH MANAGER OR DESIGNATE OF ANY SERIOUS MEDICAL CONDITION

Vet Exam Required: ❑Y ❑N ❑**Appointment Made** (Date/Time/Location):

BCSPCA

PHYSICAL EXAMINATION INTAKE FORM FOR SMALL MAMMALS

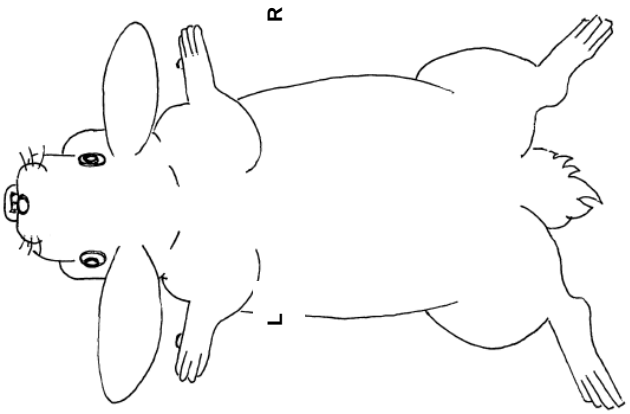
Treatments (ALL treatments and next treatments should be entered into ShelterBuddy within 24hrs of intake.)

Treatment	Date	Next Treatment
Advantage		
Revolution		
Other:		

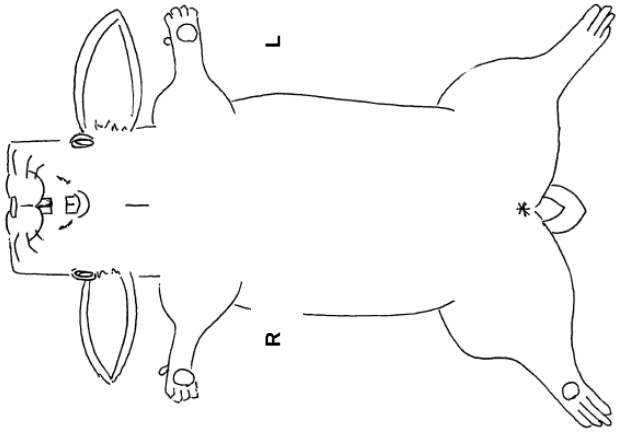
Notes/Treatment Stickers:

Body Map (Note masses, wounds, and lesions)

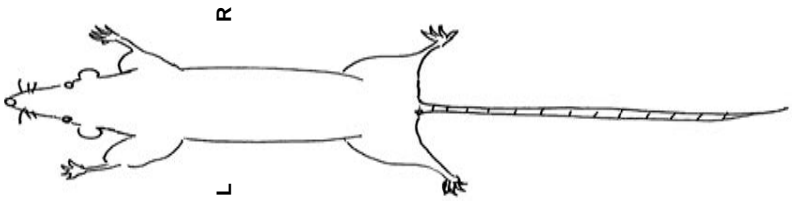
Dorsal



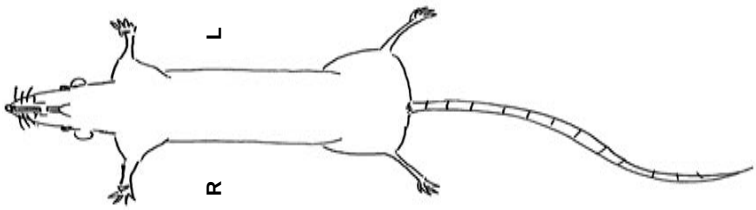
Ventral



Dorsal



Ventral



Appendix E: Purina Body Condition Scoring System (1-9)

Nestlé PURINA

BODY CONDITION SYSTEM

TOO THIN

1 Ribs visible on shorthaired cats; no palpable fat; severe abdominal tuck; lumbar vertebrae and wings of ilia easily palpated.

2 Ribs easily visible on shorthaired cats; lumbar vertebrae obvious with minimal muscle mass; pronounced abdominal tuck; no palpable fat.

3 Ribs easily palpable with minimal fat covering; lumbar vertebrae obvious; obvious waist behind ribs; minimal abdominal fat.

4 Ribs palpable with minimal fat covering; noticeable waist behind ribs; slight abdominal tuck; abdominal fat pad absent.

IDEAL

5 **Well-proportioned; observe waist behind ribs; ribs palpable with slight fat covering; abdominal fat pad minimal.**

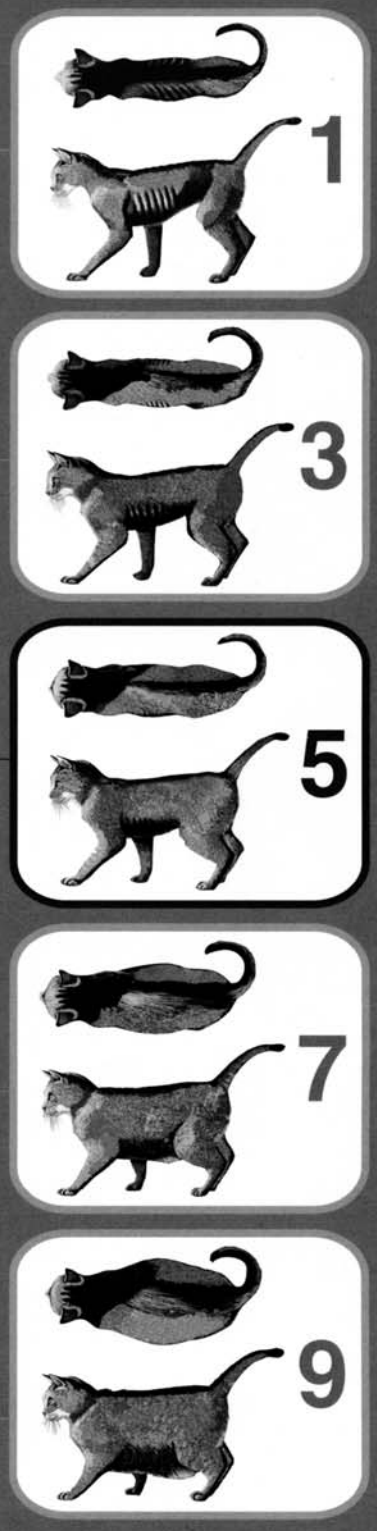
TOO HEAVY

6 Ribs palpable with slight excess fat covering; waist and abdominal fat pad distinguishable but not obvious; abdominal tuck absent.

7 Ribs not easily palpated with moderate fat covering; waist poorly discernible; obvious rounding of abdomen; moderate abdominal fat pad.

8 Ribs not palpable with excess fat covering; waist absent; obvious rounding of abdomen with prominent abdominal fat pad; fat deposits present over lumbar area.

9 Ribs not palpable under heavy fat cover; heavy fat deposits over lumbar area, face and limbs; distention of abdomen with no waist; extensive abdominal fat deposits.



Call 1-800-222-VETS (8387), weekdays, 8:00 a.m. to 4:30 p.m. CT

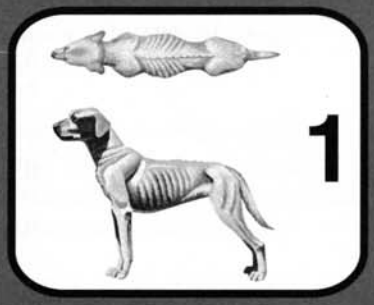
Nestlé PURINA

Nestlé PURINA

BODY CONDITION SYSTEM

TOO THIN

1 Ribs, lumbar vertebrae, pelvic bones and all bony prominences evident from a distance. No discernible body fat. Obvious loss of muscle mass.



2 Ribs, lumbar vertebrae and pelvic bones easily visible. No palpable fat. Some evidence of other bony prominence. Minimal loss of muscle mass.

3 Ribs easily palpated and may be visible with no palpable fat. Tops of lumbar vertebrae visible. Pelvic bones becoming prominent. Obvious waist and abdominal tuck.

IDEAL

4 **Ribs easily palpable, with minimal fat covering. Waist easily noted, viewed from above. Abdominal tuck evident.**

5 **Ribs palpable without excess fat covering. Waist observed behind ribs when viewed from above. Abdomen tucked up when viewed from side.**

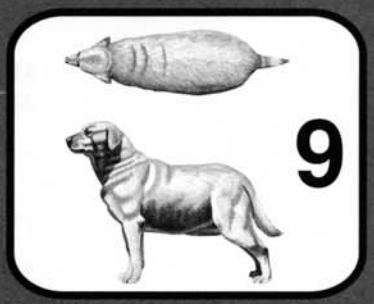
TOO HEAVY

6 Ribs palpable with slight excess fat covering. Waist is discernible viewed from above but is not prominent. Abdominal tuck apparent.

7 Ribs palpable with difficulty; heavy fat cover. Noticeable fat deposits over lumbar area and base of tail. Waist absent or barely visible. Abdominal tuck may be present.

8 Ribs not palpable under very heavy fat cover, or palpable only with significant pressure. Heavy fat deposits over lumbar area and base of tail. Waist absent. No abdominal tuck. Obvious abdominal distention may be present.

9 Massive fat deposits over thorax, spine and base of tail. Waist and abdominal tuck absent. Fat deposits on neck and limbs. Obvious abdominal distention.



The **BODY CONDITION SYSTEM** was developed at the Nestlé Purina Pet Care Center and has been validated as documented in the following publications:

Mawby D, Bartges JW, Moyers T, et. al. ***Comparison of body fat estimates by dual-energy x-ray absorptiometry and deuterium oxide dilution in client owned dogs.*** *Compendium 2001; 23 (9A): 70*

Laflamme DP. ***Development and Validation of a Body Condition Score System for Dogs.*** *Canine Practice July/August 1997; 22:10-15*

Kealy, et. al. ***Effects of Diet Restriction on Life Span and Age-Related Changes in Dogs.*** *JAVMA 2002; 220:1315-1320*

Call 1-800-222-VETS (8387), weekdays, 8:00 a.m. to 4:30 p.m. CT

Nestlé PURINA

BCVMA / BCSPCA PROTOCOL

ANIMALS IN CRITICAL DISTRESS

Preamble:

This protocol is intended to identify the entry points for veterinarians to seek SPCA intervention with respect to decision making regarding animals in "critical distress". The term "critical distress" is defined under section 12(1) of the Prevention of Cruelty to Animals Act (PCAA) and further clarified in this protocol. This protocol is intended to assist both the SPCA and BCVMA members in dealing with field situations.

The BCVMA and SPCA agreed that the veterinarian, although the most appropriate party to make the recommendation, does not have the legal authority to euthanize an animal in critical distress. On the other hand, the special constables appointed by the SPCA are expected to seek veterinary opinion whenever possible when making decisions under section 12(2). However, in field situations, it is not always possible to have both parties readily available to attend to make the necessary decision. This protocol is designated to address both the decision making process and the personnel availability issue. The outcome is a much more humane process for the benefit of the animals.

This protocol will only address the issue of critical distress. We interpret section 12 of the PCA Act as replying on the veterinarian to provide the option on whether an animal is in critical distress. The protocol sets out a decision making process that is reasonably objective. The primary concern is the welfare of the animals. Convenience to the veterinarian and SPCA agents is only a secondary concern.

This protocol will be put into effect upon approval by the BCVMA and SPCA respectively. The BCVMA will distribute the forms to its members for use.

Protocol:

1. Whenever a recommendation of euthanizing an animal in critical distress is to be made, the prescribed procedure must be followed. The prescribed procedure is contained in the form jointly approved by the BCSPCA and the BCVMA. (see attached).
2. If the owner of an animal presented to the veterinarian is not readily identified, the SPCA should be notified at the earliest opportunity. The SPCA can take custody of the animal without physically moving the animal to its own facility. The presence of critical distress is determined prior to any treatment is given. Treatment should normally only be done to relieve pain and suffering.
3. The criteria to determine whether euthanasia is warranted are clearly stated in the forms and are used by both the veterinarian and the authorized agent to come to a decision.
4. When the decision of euthanasia is made with only one party in attendance, the remains of the animals should be held for 8 days whenever possible. In case of challenge, the remains can be made available to an independent third party for post mortem examinations. The veterinarian requesting authorization should make all reasonable effort to verify the authority of the agent (e.g. request badge number) and have the verbal authorization witnessed by another party. Signature oo fax copy is acceptable.
5. When both parties are in attendance, the form which constitutes the basis of the decision must be signed by both parties and kept by the SPCA as the record of action taken under s.12 of the PCA Act. A copy is also kept by the veterinarian as part of the medical record he or she is required to keep. (Giving advice on a medical condition constitutes the practice of veterinary medicine regardless of whether actual treatment is preformed or not.)

Entry points for SPCA intervention: (When the veterinarian determines critical distress exists)

- The animal is comatose and death is imminent.
- The animal is comatose but stable. The prognosis for survival is poor without treatment.
- The animal is in severe pain or suffering and treatment to relieve the pain or suffering is not available.
- The animal is in severe pain or suffering and effective treatment is available to relieve them. The prognosis for survival, however, is poor.
- The animal is in severe pain or suffering. Although relief is available and the prognosis for survival is good, it is either not practical to treat or the animal will be exposed to further pain or suffering subsequent to treatment (e.g. transportation, lack of proper holding facility).
- The pain and suffering can be relieved with good prognosis for survival and no further exposure to pain or suffering. There are reasons other than medical ones that preclude treatment being provided. (e.g. expensive, owner refusal, economically not justified).

Evaluation of Animal in Critical Distress:

A. Minimum Clinical Database

   Use the protocol in the prescribed form.

B. Subjective Assessment:

   Four areas are identified where the opinion of a veterinarian is required:

   1. On the basis of direct observation and examination, is the animal in significant pain or discomfort? [a subjective observation of the veterinarian – a comatose animal is assumed to be not in pain or suffering]
   2. Is treatment to relieve pain or suffering available, practical, safe or authorized?
   3. With treatment for pain or suffering only, what is the prognosis with respect to survival?
   4. Would treatment expose the animal to further pain or suffering?

Decision for Euthanasia: (see Critical Decision Protocol on back of form)

The opinion regarding level of suffering, chance of survival or irreparable damage is a medical opinion to be made by the veterinarian. The decision to authorize euthanasia is, however, a legal decision which rests entirely on the special constable upon the anima being apprehended by the SPCA.

If a recommendation for euthanasia is made, the veterinarian is responsible for defending the recommendation on a medical basis and is subject to evaluation by other veterinarians. The special constable should only authorize the euthanasia upon verification that all the necessarily procedures have been followed.

If the special constable, upon receiving a recommendation for euthanasia, decides to withhold the authorization, the veterinarian does not have the authority to override.

If the veterinarian is not recommending euthanasia the SPCA authorized agent should not override the opinion by may seek a second opinion if deem necessary for the welfare of the animal. (The provision of s. 12(2)(b) of the PAC Act is only in effect if a registered veterinarian is not readily available.). If the veterinarian has reason to believe that the special constable has acted inappropriately in ordering euthanasia, he may refuse to provide the service.

BCVMA / SPCA

CRITICAL DISTRESS ASSESSMENT FORM

(for the purpose of carrying out the provisions of section 12 of the *Prevention of Cruelty to Animals Act*)

Animal Identification

Species: _____ Breed: _____ Tattoo / ID: _____ Owner: _____

Sex: _____ Colour: _____ App. Age: _____ App. Weight: _____

Location where animal found or apprehended: _____

_____ Date / Time of exam: _____

Clinical Findings

T: HR: P: RR: CRT: MM Colour:

Level of Consciousness: (see scale on reverse) _____

Level of Suffering: (see scale on reverse) _____

Other Stress Factors _____

Systems (describe physical findings / observation)

	Abnormal	Normal	Not Examined		Abnormal	Normal	Not Examined
[1] Neural	☐	☐	☐	[2] Respiratory	☐	☐	☐
[3] Cardiovascular	☐	☐	☐	[4] GIT / Abdominal	☐	☐	☐
[5] Genitourinary	☐	☐	☐	[6] Skeletal	☐	☐	☐
[7] Skin	☐	☐	☐	[8] Eyes	☐	☐	☐

[9] Others (specify)

Recommendation: _____

Date / Time Recommendation given: _____ FAX / PHONE: _____

Veterinarian: _____ Special Constable: _____ Witness: _____

Critical Decision Protocol

1) Is the animal suffering? (≥ 2 on the suffering scale)

   Yes – go to 2 No – go to 6

2) Is treatment to reduce suffering to level 1 or below available and practical?

   Yes – got to 3 No – go to 5

3) What is the prognosis for survival?

   Good / fair (>25%) – go to 4 Poor (<25%) – go to 7

4) Will there be further exposure to suffering (as defined in 1) in the short term?

   Yes – go to 5 No – go to 6

5) Is the suffering assessed to be Level 3?

   Yes – go to 7 No – go to 6

6) Treat to relieve suffering if necessary and practical – **Euthanasia not recommended**

7) Treat to relieve suffering if available and practice – **Recommended Euthanasia**

****

Suffering Scale: (Levels 0 to 3)

0 Not suffering: No apparent painful responses observed. Animal is acting within normally expected behavioral limits considering the species and situation. Physiologic data are normal, i.e. no evidence of tachycardia or tachypnea, pupil dilation, hyperthermia and other physical / physiological parameter that could not be attributed to the current environment.

1 Mild suffering: Animal may show pain responses by guarding an affected region, showing a mild limp or resisting palpation; very mild or no depression but will continue to pursue normal behaviour for the situation it is in; may show interest in eating and playing; may have mild tachycardia and tachypnea; and, pupil dilation only observed when the painful focus is approached.

2 Moderate suffering: Animal vocalizing discomfort (with or without contact); cannot settle easily, is restless or assumes an abnormal posture; avoid contact or aggressively resents contact with caregiver; cannot weight bear on affected area; severely guards or exhibits obvious pain response when affected area palpated; tachypnea and tachycardia readily observable; and, pupil may be dilated upon being handled.

3 Severe suffering: Animal is depressed and does not care about its surroundings or is exhibiting extreme flight response despite obvious severe injuries; unable to settle or is semi-comatose; exaggerated vocalizing constantly or intermittently without any provocation; not interested in the environment or interacting with caregiver or exhibits extreme avoidance response; void without attempting to move; Tachypnea and possibly dyspnea, tachycardia, pupil dilation, trembling or shivering; sweating in equine species; and, hyperesthesia and / or hyperalgesia, hyperthermia relating to tissue damage.

Consciousness Scale:

A Alert and responsive, interested in the environment.

D Depressed, not interested in the environment but readily respond to stimuli

S Semi-comatose. Show awareness to stimuli with no responses or weak responses.

C Comatose. No voluntary or involuntary responses to stimuli.

USE OF FORENSIC ENTOMOLOGY IN ANIMAL CRUELTY INVESTGATIONS

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Insects can be very valuable evidence in animal cruelty investigations. Insects colonize a dead animal very rapidly after death, assuming conditions are appropriate, such as season, meteorological conditions, time of day, and access is available. They will also colonize a wound or necrotic area in life. A forensic entomologist can use entomology to estimate the time of death or time since insjury, or the length of time an animal has been neglected.

Forensic (or medico-legal) entomology[1] is the study of the insects associated with a dead animal, either human or animal, in an effort to estimate the minimum length of time the insects have been associated with the body in order to imply the minimum elapsed time since death ot time since colonization. Insect evidence may also show that the carcass has been transported to another area after the kill, or that the carcass has been disturbed at some time, either by animals, or by the criminal returning to the scene of the crime.

However, the primary purpose of forensic entomology today is to use the insects' tenure on the remans to estimate elapsed time since death or injury. Forensic entomology is used, at the moment, mostly in homicide investigations, but the principles behind the techniques are the same whether the carcass is human or animal, so forensic entomology can be used just as effectively in cases of animal cruelty.

Forensic entomology was first reported to have been used in human death investigations in 10th Century China and was used sporadically in the 19th Century and the early part of the 20th Century, playing a part in some very major cases. However, in the last 35 years, forensic entomology has become more and more common in death investigations.

There are two main ways of using insects to estimate elapsed time since death : -

1. using maggot age and development
2 using successional waves of insects.

The method used is determined by the circumstances of each case. In general, the first method is used when death occurred less than a month prior to discovery and the second method is used when the animal was killed a month to a year prior to discovery.

The first method, that of using maggot age and development, can give a date of death accurate to a day or less, or a range of days, and is used in the first few weeks after death. Maggots are larvae or immature stages of Diptera or two-winged flies. The insects used in this method are those that arrive first on the carcass,usually the Calliphoridae or blow flies. These flies are attracted to a carcass very soon after death. They lay their eggs on the carcass, usually in a wound, if present, or if not, then in any of the natural orifices. Many species will also colonize a living animal if necrotic tissue is present. The development of these insects follows a set, predictable, cycle.

The insect egg is laid in batches on the carcass and hatches, after a set period of time, into a first instar (or stage) larva. The larva feeds on the aniaml and molts into a second instar larva. The larva continues to feed and develop into a third instar larva. The stage can be determined by size and the number of spiracles (breathing holes). When in the third instar, the larva continues to feed for a while then it stops feeding and wanders away from the

[1] In its broadest sense, forensic entomology is the study of insects involved in any legal action, and can include urban and stored products entomology.

animal carcass, either into the fur or the soil, to find a safe place to pupate. If the animal is indoors, they may be under carpet, mats, bedding, furniture, litter boxes etc. This non-feeding wandering stage is termed prepuparial. The larva then loosens itself from its outer skin, but remains inside. This outer shell hardens, or tans, into a hard protective outer shell, or pupal case, which shields the insect, the pupa, as it metamorphoses into an adult. Freshly formed pupae are pale in colour, but darken to a deep brown in a few hours. After a number of days, an adult fly will emerge from the pupa and the cycle will begin again. When the adult has emerged, the empty pupal case is left behind as evidence that a fly developed and emerged.

Each of these developmental stages takes a set, known time. This time period is based on the availability of food and the temperature. In the case of a large animal, food availability is not usually a limiting factor.

Insects are 'cold blooded', so their development is extremely temperature dependent. Their metabolic rate is increased with increased temperature, which results in a faster rate of development, so that the duration of development decreases in a linear manner with increased temperature, and vice-versa.

An analysis of the oldest stage of insect on the animal and the temperature of the region in which the body was discovered leads to a day or range of days in which the first insects oviposited or laid eggs on the carcass. This, in turn, leads to a day, or range of days, during which death occurred. For example, if the oldest insects are 7 days old, then the animal was killed at least 7 days ago. This method can be used until the first adults begin to emerge, after which it is not possible to determine which generation is present. Therefore, after a single blow fly generation has been completed, the time of death is estimated using the second method, that of insect succession.

The second method is based on the fact that a carcass, whether human or animal, supports a very rapidly changing ecosystem going from the fresh state to dry bones in a matter of weeks or months depending on geographic region. During this decomposition, the remains go through rapid physical, biological and chemical changes, and different stages of the decomposition are attractive to different species of insects. Certain species of insects are often the first witnesses to a crime. They usually arrive very rapidly after death if the season is suitable i.e. spring, summer or fall in most of North America and can arrive within minutes in the presence of blood or other body fluids. These first groups of insects are the Calliphoridae or blow flies. Other species are not interested in the carcass when the carcass is fresh, but are only attracted to the carcass later such as the Piophilidae or skipper flies which arrive later, during protein fermentation. Some insects are not attracted by the carcass directly, but arrive to feed on the other insects at the site. Many species are involved at each decomposition stage and each group of insects overlaps the ones adjacent to it somewhat. Therefore, with a knowledge of the regional insect fauna and times of carrion colonization, the insect assemblage associated with the remains can be analyzed to estimate a window of time in which death took place. This method is used when the animal has been dead from a few weeks up to a year, or in some cases several years after death, with the estimated window of time broadening as time since death increases. It can also be used to indicate the season of death e.g. early summer. It is important to note that regional, local knowledge of insect succession is required for this method to be successful.

LIVE ANIMALS

Blow flies will also colonize live animals and so cases may occur where live animals have maggots on them. This often occurs when an animal is injured or has hotpsots which become necrotic. In most cases the maggots are feeding on necrotic tissue and so are not injuring the animal and are actually cleaning the wound. However, their presence can be used to indicate when an injury occurred or the length of time the animal has been neglected. CAUTION – collection of larvae from a live animal should be performed by a veterinarian as, if a maggot is damaged, it will release proteins that can cause anaphylaxis. Also, the presence of large numbers of larvae crawling in the fur may look as though the animal has much greater injuries than are actually present. In reality, these may just be prepuparial larvae leaving the food source and can be simply combed or shaved out.

PROCEDURE

The first and most important stage of the procedure involved in forensic entomology involves careful and accurate collection of insect evidence at the scene. This involves a knowledge of the insects behaviour, therefore it is best performed by a forensic entomologist. If you contact a forensic entomologist, they will usually be more than willing to attend the scene. However, this is not always practical, so collection is often performed by the investigator at the scene. Collection is not difficult. It does not take very long and can be performed with very little equipment. A typical forensic entomology kit includes a number of plastic vials, such as urinalysis vials, as seen at a doctors office, some forceps, some small children's paint brushes, 70-95% alcohol or 50% isopropyl alcohol, a bottle of water, elastic bands and paper towels, a thermometer (such as bought cheaply at a drug store or grocery store) and a camera.

COLLECTING, PRESERVING AND PACKAGING SPECIMENS.

COLLECTION

Samples of insects of all stages should be collected from different areas of the body and from the soil or, if indoors, from under carpet, mats etc. Insects will often congregate in wounds and in and around natural orifices.

The two main insect groups on bodies are flies (Diptera) and beetles (Coleoptera).

Both types of insect look very different at different stages of their lives.

Flies can be found as:-

- eggs (in egg masses usually)

- larvae or maggots (in a range of sizes from 1-2 mm to 17 mm)

- pupae and/or empty pupal cases

- adults

EGGS - are very tiny, but are laid in clumps or masses, and are usually found in a wound or natural orifice, or in the fur. They can be collected with a child's paint brush dipped in water or with forceps. **Half** should be preserved in 70-95% alcohol or 50% isopropyl alcohol. **The rest** should be placed in a vial with a little damp paper towel to prevent dehydration. If it will be more than a few hours before the entomologist receives them, they should also be given a small piece of beef liver or a piece of meat from the carcass (about a cubic inch). Make sure there is tissue or sawdust present if meat is added, to prevent drowning. They need some air. Newly emerged maggots can escape through holes, so a paper towel held over the top of the vial with a rubber band is excellent, as long as the vial stays upright! (No lid other than the paper towel is needed). If eggs are the only insects found then they can be used to age the carcass to a matter of hours. However, in order to do this, the investigator must observe the eggs every few hours to determine the time of hatch. For instance, when collected the investigator may observe that they are all in the egg stage (ie not moving). He or she may check the vial two hours later and note that 5% are moving so have hatched, two hours later, they may note that 40% have hatched and 2 more hours later they may note that 90% have hatched. This is vital information for the entomologist.
If maggots are already present on the remains, there is usually no need to collect eggs.

MAGGOTS - collect a range of sizes. Maggots will be found crawling on or near the remains and may be in maggot masses. The masses generate a lot of heat, which speeds up development. Therefore, please note:-

⇒ the site of maggot masses

⇒ the temperature of each mass (thermometers can be acquired cheaply at drugstores) or if no thermometer available, please estimate size of mass.

⇒ label which maggots come from a particular mass.

Large maggots are usually older so are most important, but smaller maggots may belong to a different species so both large and smaller maggots should be collected, with the emphasis on larger maggots. Collect samples of maggots from different areas of the carcass and the surrounding area, and keep them separate.

As mentioned before, third instar larvae leave the food source to find a suitable area in which to pupate. They may wander some distance from the carcass so the soil for a metre or two around the carcass should be carefully sifted. Some may burrow down into leaf litter, so the soil below the carcass should be checked for several centimetres. If the remains were on a slope, the body fluids will seep downhill and insects will be found there, feeding on the fluids. This means that a very intensive search of the carcass and the surrounding area must be made in order to get the entire picture.

When collected half the larvae should be preserved immediately for two reasons. Firstly, to show the entomologist, if s/he is not present at the scene, what stage the larvae were when collected, as if they are then placed on meat, they will continue to develop, giving a misleading impression to the entomologist when they are examined. Secondly, to produce as evidence in court.
If there are lots of maggots on the carcass, preserve approximately half of all sizes.
If there are only 20-30, preserve 1 or 2
Preserve the specimens by immersing them in hot water for a few minutes, straining them (dollar store tea strainer) then putting them in 70-95% alcohol or 50% isopropyl alcohol. If no hot water available, put straight in preservative. DON'T FORGET THAT HALF MUST BE KEPT ALIVE. A sample should contain about 100 maggots (of each size if possible).
The living specimens should be placed in a vial, with air and food, as for the eggs. There should be only enough maggots to cover the bottom of the vial. Too many in one vial will drown.

PUPAE and EMPTY PUPAL CASES - these are extremely important and are easy to miss. They are often found in hair or soil near the carcass. Insects like dry, secure areas away from the wet food source in which to pupate. They range from 10-20 mm, and are oval, like a football. They are dark brown when completely tanned. An empty pupal case is very similar but is open at one end, where the adult fly has emerged. They need some air, so secure a paper towel over vial as for eggs, as although the pupae are immobile, if they emerge during transit, an adult can get out of anything! A piece of tissue in the vial will help to avoid breakage as they are quite vulnerable. This can be very slightly moistened with water, but be careful not to drown them. The moisture isn't necessary if the journey is not long. DO NOT PRESERVE PUPAE! They won't grow, so the reasons for preserving larvae do not apply, and it is almost impossible to identify a pupa until it emerges as an adult. I also cannot determine its exact age until I find out the day on which it emerges. If a pupa is found when a pale colour, it is just entering pupariation, so please keep that specimen separate and label as pale coloured, as it will darken in a few hours. Such a specimen can be aged to a matter of hours.

ADULT BLOW FLIES - are less important. They are only of use in indicating which species of insect are likely to develop from the carcass, as you cannot determine whether an adult has developed on the carcass, or has just arrived from somewhere else to oviposit, unless it emerged only an hour or so earlier.
HOWEVER, if an adult has crumpled wings, it may have just emerged, so IS still important as it can be linked to the carcass. It should be collected, labeled as such, and kept separate. Adults can be collected by

net or by using an inverted vial. They can be left in the vial without air or food. The presence of empty pupal cases, however, indicates that an insect has developed on the carcass and reached adulthood. This can be very important as it indicates that at least one generation of flies of this species has completed development on the carcass.

OTHER SPECIES OF FLIES – other species will colonize later and all stages, including adults are important. They can be placed in a vial with damp paper towel or in alcohol

BEETLES - can be found as adults, larvae or grubs, pupae and also as cast skins. All stages are equally important. They move fast and are often found under the carcass, and in the coat. They can be placed in vials with some air. They only need to be fed if it will be more than 24h before they reach an entomologist. If necessary they can be fed extra maggots. They are cannibals so should not be placed in the same vial!!

OTHER INSECTS - other insects may be present. If you are not sure whether it's an insect, collect it anyway and place in a vial.

OTHER SAMPLES - Soil and leaf litter samples will also be useful. About a coffee can size of soil from under or very near the carcass is useful. Fill only half full to allow for air. If the soil below the carcass is extremely wet, it is better to collect the soil from near the remains.

LABELING - Insects collected from one part of the carcass should be kept separate from those from another area. Different species should be kept separate as beetle larvae feed on fly larvae! If they look different, separate them. Each vial should be labeled with :-

- area of body/soil
- date and time of collection
- name of collector
- stage e.g. larvae, so that if the specimens are pupae when I receive them. I will know that they developed into the next stage during transit.

HANDLING - most specimens are fairly fragile and are probably best picked up with gloved fingers which are often gentler than forceps if you are not used to them. Very tiny or delicate specimens can be picked up using an artist's brush dipped in water or alcohol depending on what you are about to do with them. Make sure all the vials are very well sealed!

PACKAGING - The insects should be taken to the entomologist as soon as possible. They should be couriered or hand delivered to maintain continuity. They should be packaged in a cardboard box as this has lots of air. Each vial can be taped so that it remains upright. The whole box must remain upright.

I need to know many other factors about the crime site :-

HABITAT -

Indoors or outdoors?

If outdoors:

- vegetation - trees, grass, bush, shrubs?
- soil type - rocky, sandy, muddy?
- weather - at time of collection, sunny, cloudy?
- temperature and possibly humidity at collection time
- elevation and map coordinates of the death site
- is the site in shade or direct sunlight?
- mention anything unusual, such as whether it's possible that the carcass may have been submerged at any time.

If indoors:

- where found
- lying on carpet? Bedding?
- are windows/doors shut or open?

REMAINS - I need to know :-

- is the carcass wrapped, buried or covered? if so, how deep and with what (soil, leaves)
- what is the cause of death, in particular, is there blood at the scene?
- are poisons/pesticides likely to be involved? this may affect the decomposition rates
- what position is the carcass in?
- what is the state of decomposition?
- is a maggot mass present? how many? this will affect the temperature of the carcass
- what is the temperature of the centre of the maggot mass(s)?
- is there any other meat or carrion around that might also attract insects?
- is there a possibility that death did not occur at the present site?

PHOTOGRAPHS, and a video of the scene, the carcass *in situ* and the site after removal of the carcass are also extremely useful.

When the insects reach the insectary, the immature specimens are measured, and examined, then placed in a jar containing a suitable feeding media. In the case of blow flies, this is usually beef liver, which is placed on top of sawdust. When the insects reach the prepuparial stage and leave the food source they will burrow into the sawdust to pupate. When the adults emerge, they are killed and pinned, then placed in an insect box. Each insect has a detailed label. Any adults collected directly from the carcass are immediately killed and preserved.

The reasons for raising the immatures are two-fold. Firstly, larvae are difficult to identify to species, but adults have many more diagnostic features. Secondly, the dates of pupation and emergence can be used to help calculate the age at the time of collection.

Other important information used to determine elapsed time since death include :-

- weather records from the nearest weather station, including temperature and precipitation
- the distance between the death site and the weather station

Case Example

This method of estimating elapsed time since death using insect evidence can be demonstrated by looking at a hypothetical case. Animal remains were found outdoors in mid October. Most of the head region was missing as death was due to gunshot wounds. The upper portion of the carcass was almost skeletonized. There were several large maggot masses on the carcass which generate their own heat for a while due to the frenzied activity.

The temperature of the largest maggot mass was 20°C, even after the carcass had been refrigerated at 4°C for two hours. All sizes of larvae were collected and three pupae. These were pale in colour so had only just pupated. No puparia were found. The mean temperature at the death site was 15°C.

Two species of blow fly emerged, *Calliphora vomitoria* and *Phormia regina*. Both are common species that are among the first to arrive on a carcass. The oldest stage of *C. vomitoria* collected was just entering the prepuparial stage of the third instar. This was determined from size, no. of spiracular slits (breathing holes) date of pupation and behaviour, in that the largest specimens immediately left the beef liver and entered the sawdust, indicating that they had stopped feeding. At the temperature of the deathsite, 15°C, *C. vomitoria* takes a minimum of 9.3 days to reach the beginning of the prepupal stage of the third instar. So these insects were a minimum of 9 days old when collected on 12 October, meaning that they were laid as eggs on or before 4 October. As there was blood at the scene, the insects probably arrived very soon after death. Therefore the animal must have been killed on or before 4 October.

Using the same techniques for *Phormia regina*, the oldest specimens of which were in the pupal stage when collected, it was calculated that *Phormia regina* was oviposited no later than 3 October. Therefore, using the two insects together, it can be shown that the animal was killed on or before 3 October. Other evidence later showed that death had actually occurred on 3 October.

OTHER USES FOR INSECTS IN FORENSIC SCIENCE

- The carcass/part of the carcass may have been **moved** after death, from the scene of the killing to a second area. This may occur when the animal is killed at a house, then dumped elsewhere. Some of the insects on the carcass may be native to the first habitat or geographical area and not the second. This will show that not only was the carcass moved, but it will also give an indication of the type of area where the killing actually took place.

- The carcass may have been **disturbed** after death, by the criminal returning to the scene of the crime. This may disturb the insects cycle, and the entomologist may be able to estimate not only the date of death, but also the date of the return of the criminal.

- The **presence and position of wounds**, decomposition may obscure wounds. Insects colonize remains in a specific pattern, usually laying eggs first in the facial orifices, unless there are wounds, in which case they will colonize these first, then proceed down the carcass. If the maggot activity is centred away from the natural orifices, then it is likely that this is the site of a wound. This may help to locate a wound or projectile.

- The presence of **poisons/insecticides** may be determined using insect evidence. There is often not enough flesh left to determine chemical presence, but maggots bioaccumulate so may be analyzed to determine type of chemical present. This would be done by a toxicologist.

- **Wounding**. Some insects will colonize wounds or unclean areas on a living animal. This is called cutaneous myiasis. In these cases, the animal is still alive, but maggot infested. This may occur when an animal is wounded and survives for some time. A forensic entomologist will be able to tell when the wound occurred. This often occurs when an animal is injured and not taken to a vet or develops hotspots which become infected.

In conclusion, INSECTS ARE EVIDENCE! Forensic entomology is a very useful method of estimating elapsed time since death. It is accurate to a day or less, or a range of days, and may be the only method available to estimate elapsed time since death or length of time of neglect. It is vital that the insects are collected properly and its accuracy depends on this and on suitable conditions for insects.

COLLECTION OF INSECT EVIDENCE

Dr. Gail S. Anderson 604 506 3441, ganderso@sfu.ca

File number _____ **Date** _____ **Time**_____

Date found _____ **Time found** _____

Location found _____

_____

Officer in Charge _____ **tel.** _____

Collecting officer _____ **tel.** _____

Weather conditions at collection time (rain and temp.)_____

DEATH SCENE

Please describe _____

_____

_____

_____

_____

DESCRIPTION OF REMAINS

Species?_____ **Approx. size (adult, immature?)** _____

No . of carcasses at site _____ **Carcass position** _____

Carcass condition _____

burial? _____How deep?_____what is covering? _____

wounds? type _____where?_____

_____

Exposure

full sunshine _____partial sunshine _____how long/day? _____shade _____

Stage of decomposition _____

PHOTOGRAPHS

General scene ....., habitat surrounding body ....., body ....., wounds .....,

maggot mass (s) ....., insect activity ....., ground beneath body after removal .....,

INSECT EVIDENCE

Are there any maggot masses (very large no. of maggots all together in a ball)?

If so, how many _____, **where** _____, **temp. of centre** _____

_____ _____

_____ _____

Description of insect evidence - *e.g.* maggots, pupae, adult beetles, larval beetles *etc.* _____

_____

_____

_____

Samples :- collect from the body itself, and from the ground below and around the body. If on soil or loose material, the insects may be several centimetres down, and on any surface may be up to 50-100 cm, or even several metres away, in some cases. Older maggots will crawl away from the body to pupate, so may be still maggots, or may be pupae, which are 5mm-1cm long, red-dark brown, and look somewhat like a chocolate covered rice crispy. It is very important to know whether pupae or empty pupal cases are present and to collect them. They are quite delicate - do not preserve them. Only preserve maggots. Only some maggots should be preserved, at least half should be kept alive. Preserve them by immersing in hot water for a few minutes then putting them in alcohol (90%) if available, or freeze them, if available. If no hot water, put straight into alcohol.

Sample :-

wounds ....., head ....., genitals....., general carcass area ....., under carcass ....., where carcass meets ground ....., from soil around carcass ....., from soil when body removed .....,

please search soil beneath body for maggots, beetles, pupae or empty pupal cases.

Exhibit no.	**site collected from *i.e.* area of carcass or soil**	**type *e.g.* maggots, beetle larvae, flies, beetles**	**approx. number maggots preserved - DO NOT KILL PUPAE!**

Keep maggots and beetles (adult or larvae) separate. Keep samples from different sites separate.

Put live maggots in vial with a piece of thick paper towel slightly dampened inside and two layers of paper towel on top of vial as a lid, held in place by an elastic band, and some food, preferably beef liver (about 1 cubic inch).

Signature of Collector _____

11965 228th st. Maple Ridge, BC. V2x 6m1 - 604.467.1161 (F) 604.467.7219 Dewdneyvet.com

REPTILE STANDARDS OF CARE 2017

THE FIVE FREEDOMS

1. FREEDOM FROM THIRST, HUNGER AND MALNUTRITION
   - 1.1. Different species have different dietary requirements - care must be made that diets are tailored to the individual species.
   - 1.2. Water must be available 24-7. Even species that acquire water mostly from their food need to have water available to supplement if needed. Captive diets might vary considerably in moisture content from natural foods and can leave the animal in a net water loss state. Some species will not go to water bowls so regular misting/drip systems need to be installed. In large collections frequent empty water bowls are a clear sign of neglect. Contrary to what reptile owners claim, water bowls do not evaporate overnight. Even in very dry locations, empty water bowls indicate that owners need to be checking and refilling more frequently. During inspections is it normal to find some enclosures that water bowls are dry, either from animals knocking them over, or from animals soaking in their water dishes and overflowing the water.
   - 1.3. Water levels need to be deep enough for the animal to drink from, but no so deep that the animal cannot climb out if needed.
   - 1.4. Humidity levels must be maintained appropriate to the species in question. Dry environments for desert animals, and high humidity through misters/foggers for tropical species. Inappropriate humidity is a) a stressor on the animal, and b) can result in a net water loss, if animal normally acquires moisture from diet.
   - 1.5. Malnutrition also includes obesity. Reptiles being power fed for rapid growth and breeding can result in obese animals. Lack of exercise due to caging can also lead to obesity. Increases risk of orthopaedic problems, and increased risk of egg binding.
   - 1.6. Reptiles have complex metabolic demands, especially involving minerals and bone formation. Owners need to be able to provide susceptible animals with appropriate UV sources (ie many diurnal lizards and all turtles/tortoises and terrapenes)

2. FREEDOM FROM THERMAL AND PHYSICAL DISCOMFORT.
    2.1. Reptiles are poikilotherms - they can only regulate their body temperature through behaviour.
    2.2. Each species has its Preferred Optimum Temperature zone (POT). This is a thermal gradient between warm and cold sides of the enclosure that allows the animal to move between the zones to regulate body temperature. Their metabolism requires the ability to properly regulate temperatures. Extremes, either too hot or too cold are unacceptable.
    2.3. As above, humidity levels must be maintained at appropriate levels.
    2.4. Heat sources must be protected to prevent the animal from burning itself. This includes safety mechanisms (ie thermostats) on under tank heaters to prevent overheating and burns, or covers on heat lamps.

3. FREEDOM FROM FEAR AND DISTRESS
    3.1. Handling should be kept at a minimum as it can be stressful.
    3.2. Cohabitating differing species should be avoided. Even cohabitating multi-specimens of the same species can be problematic as reptiles are rarely social animals. When they are, there is often competition for food, space and social heirarchy.
    3.3. Enclosures need to provide visual hides/breaks, animals need to be able to feels secure. This is most important in display vivaria, but even in bin systems the animal needs to have some place to hide. Reptile breeders will often claim that bin systems provide that privacy, but even in bin systems reptiles will often choose to spend large amount of time within a hide.
    3.4. Enclosures need to be large enough to avoid abrasions and pressure sores. Different substrates, resting areas, branches can alleviate animals resting always on the same parts of their bodies and prevent developing pressure sores. Reptiles like water dragons might need a visual cue as to where enclosures end and glass starts.

4. FREEDOM FROM PAIN, INJURY AND DISEASE.
    4.1. Vivarium design has to be for the animal and not just what is aesthetically pleasing for the owner. Care must be taken to minimize risk of injury secondary to unprotected heat sources, sharp edges, falling from heights, injury from falling enclosure furniture and especially protection from escaping. Many reptiles are injured when getting stuck in small enclosure openings as they try to escape.

4.2. Veterinary care is important and should be initiated at early onset. Routine faecal exams are necessary to monitor for intestinal parasitism that can buildup quickly in confined enclosures.

4.3. Proper hygiene is essential, including regular, i.e. daily to weekly, cage cleanings to ensure that animal is healthy, secure, as well as to identify any problems that might be developing. MULTIPLE FECES/VISIBLE WATER LINE RINGS ARE INDICATIONS OF NEGLECT. Feces in water bowls is a common occurrence but in properly monitored facilities, they will only account for a small percentage. If large numbers of water dishes are contaminated it is an indication of improper husbandry.

5. FREEDOM TO EXPRESS NORMAL PATTERNS OF BEHAVIOUR.

5.1. Exercise is an important component to the health of any animal. Sufficient space must be provided to allow the animal a range of movements

5.2. Enclosures should mimic as much as possible the animals natural habitat. Arboreal reptiles need places to climb, burrowing reptiles a place to dig and aquatic reptiles a place to both be in and out of the water (where appropriate)

5.3. Heat must be readably available. Reptiles expect heat in areas of high light. Having heat panels in darkened areas of the enclosure is not appropriate. Arboreal lizards only provided heat rocks as a heat source can suffer burns if that is the only climbing area available.

5.4. Feeding live food is unethical. Most reptiles can be moved over to frozen thawed or fresh killed. In rare cases, some animals will only eat live food, but those are the exception to the rule. The presence of multiple animals that will only eat “Live Food” is statistically unlikely. **It is important to note that the welfare of prey animals is equally important as the welfare of the reptiles**

CAGING

Reptile caging varies in quality and design. They range from aquarium, through mesh cages to plastic bins. Things to consider when inspecting is;

- Is the enclosure escape proof.
- Is it non-toxic and easy to clean
- Is it non-porous.
- Is it species appropriate

		Dimensions
Lizard	Terrestrial	L = 3xA, W = 2xA
	Arboreal	L = 3xA, W = 2xA, H = 2xA
	Burrowing	L = 3xA, W = 2xA, H = 1/2xA and at least 30 cm of substrate.
Turtles/ Tortoises/ Terrapenes	Terrestrial	L /W 5xA squared
	Aquatic	L = 5xA, W = 3xA and 1/2 A in waters depth.
Snakes	Terrestrial	Length of cage(L), plus width of cage (W) must =length of animal (A) or L+W=A Mader(1996)
	Arboreal	Length of cage(L), plus width of cage (W) must =length of animal (A) or L+W=A, and H = 1/2xA Mader(1996)
	Burrowing	Length of cage(L), plus width of cage (W) must =length of animal (A) or L+W=A, and H (1/2 x Animals length) above substrate and allow at least 30 cm of substrate.
		• **Cage Length (L)** • **Cage Width (W)** • **Cage Height (H)** • **Animals Length (A)**

HEATING

Currently there are several methods to provide supplementary heating they include;

- Incandescent bulbs, cheap but energy inefficient.
- Hot rocks, or heated pads that go into the aquarium. These are no longer considered appropriate due to risk of burns However still common in the trade.
- Under tank heating mats these must be connected to a thermostat to prevent overheating.
- Heating panels - These come in varying wattages and allow for heating from above, as well as more natural for arboreal reptiles. These should be located in an area of high light as reptiles expect to find heat in areas of high light.

I cannot stress the importance of thermostats. These can be as simple as a hardware reostat or as complicated as computerized thermostats. These help control temperatures, and reduce the risk of burns.

HUMIDITY/VENTILATION

Humidity is an under appreciated problem with reptiles. Many tropical species, especially iguanas suffer horribly under low humidity levels. Gout, renal disease and bladder stones are common occurrences in these animals. Owners will often times reduce ventilation to maintain higher humidity levels and this is a mistake as it increases the likely hood of bacterial or fungal problems. Instead the inclusions of water features, like waterfalls, sprayers (ie mist king pumps) or even humidifiers repurposed can provide improved humidity.

Ventilation and air turnover is very important. The current trend in bin systems has resulted in reduced ventilation. Some breeders have installed small computer fans to supplement ventilation, but this is still not wide spread. In large collections there should be marked air volume turnover, however this is not the norm, and most facilities suffer from poor air quality. Ammonia levels should be part of any inspection.

Closely monitor arboreal enclosures, ventilation can often be poor in the deeper sections of tanks. Vertical airflow is as important as horizontal airflow.

	Lifestyle	Habitat	POTZ in °C	Relative Humidity	UVB	Comments
Hermann's Tortoise	Terrestrial	Temperate	20-28 °C	30-50%	Yes	Can be outside in summer months.
Leopard Tortoise	Terrestrial	Savannah to semi-arid to desert	25-35	40-75%	Yes	
Red-Eared Slider	Semi-Aquatic	Temperate	20-24	60-90%	Yes	Highly invasive in most locals
Red-Foot Tortoise	Terrestrial	Grasslands to forest edge	21-27	50-60%	Yes	
Yellow Foot Tortoise	Terrestrial	Rainforest	25-27	75-80%	Yes	
Green Iguana	Terrestrial, Arboreal	Rainforest	25-35	75-100%	Yes	High humidities required. Prone to renal failure otherwise
Asian Water Dragon	Arboreal, semi aquatic	Arboreal/ semi-aquatic	24-30	80-90%	Yes	
Bearded Dragon	Terrestrial	Desert	25-35 with a Basking spot of 38-42	30-40%	Yes	Humid hides to assist in shedding.
Leopard Gecko	Terrestrial	Semi-arid	25-30	30-40%	No	
Veiled Chameleon	Arboreal	Semi-arid	21-38	75-80%	Yes	Requires a drip system for water. Caging is usually mesh for increased ventilation
Panther Chameleon	Arboreal	Tropical	25-38	60-70%	Yes	Requires a drip system for water. Caging is usually mesh for increased ventilation
Savannah Monitor	Terrestrial	Savannah	26-38	20-50%	Yes	Eats whole prey so less reliant on UV light.
Asiatic Water Monitor	Terrestrial/ semi-aquatic	Tropical	26-40	50-80	Yes	Eats whole prey so less reliant on UV light.
Crested gecko	Arboreal	Tropical	25-28	50-70%	Yes	Requires specialized diet ie Repashy

	Lifestyle	Habitat	POTZ in °C	Relative Humidity	UVB	Comments
Garter Snake	Terrestrial/ semiaquatic	Temperate	21-28	50-80%	No	
Kingsnake	Terrestrial	Semi-arid	25-30	30-70%	No	
Corn Snake	Terrestrial	Semi-arid	25-30	30-70%	No	
Red - tailed Boa	Terrestrial/ semi-arboreal	Rainforest	28-30	50-80%	No	
Green Tree Python	Arboreal	Rainforest	28-35	50-80%	No	
Sand Boa	Terrestrial	Burrowing	25-30	20-30%	No	
Ball Python	Terrestrial	Scrubland	25-30	50-80	No	
Burmese python	Terrestrial to semi arboreal	Tropical	25-30	50-80%	No	
Reticulated python	Terrestrial to semi arboreal	Tropical	25-30	50-80%	No	

LIGHT

Many species of reptiles require UV light to produce vitamin D3 and needed for proper bone formation. UV wavelengths are produced by fluorescent or metal halide bulbs. UV testers are available online for use with mobile devices. They are useful for assessing if bulb has any UV output, but not sensitive enough to determine how much, nor how beneficial to the animal.

- Fluorescent light UV output diminishes with time. Expected life of a UV bulb is six months. Advantage cheap
- Metal Halide bulbs produce UV light for longer but initial expense is much higher.
- Compact fluorescence are the current standard, but some chameleons develop eye problems under these bulbs and I personally recommend linear fluorescent tubes when possible
- Glass filters out UV so there should be no glass between the bulb and the animal.
- Natural sunlight is the best source of UV for reptiles.

- Incandescent bulbs DO NOT produce UV light. Some of these bulbs are marketed as daylight bulbs but they are only similar in spectrum to visible light and do not provide UV.
- Blacklights are not an appropriate source of UV light
- Reptiles owners will argue that they supplement with oral Vitamin D3, but the studies show very poor uptake and should not replace UV light (Allen and Oftedal, 1994).
- Photoperiod is also important. Species from southern climes should have 12 hour diurnal cycles, while temperate species should have annual variation consistent with the season.

HIDES

Another inconsistent area of reptile husbandry is access to hides. These animals are most commonly prey and therefore benefit from an area that they can feel somewhat protected. Even in bin setups, these animals seem to benefit from hides where they can feel confined and protected.

HEALTH

In almost a chicken and egg situation, most reptile owners have learned to treat medical problems on their own. Reptile medicine, while advancing considerably over the last 40 years is still a niche area. Few veterinarians have the training or interest in working with these animals. Since few reptile owners bring their pets to the vet, few vets dedicate the time to learn how to treat these animals. However no matter the experience of the reptile keepers, the lack of antibiotics, effective antifungals, analgesics, radiology and diagnostic medicine severely limits their abilities to treat animals effectively and humanely. Reptile owners need to seek out qualified veterinary care, and if its not available find one that is willing to learn.

- Reptile owners should keep effective records of animals in their care, especially important with larger numbers of animals. Records should include feeding, defications and shedding as a minimum database.
- Quarantine of a minimum of 6 months, and for some species (snakes) 9-12 months.
- Faecal exams should be done on all new acquisitions, and every 6-12 months on animals in care.
- Blood smear for haemoparasites is recommended

Carnivores	
Species	
Snapping Turtle	Eats assorted mice, insects, fish and small amount of plant material
Insectivorous lizards - Ie most skinks, chameleons, whiptails, lacertids.	• Assorted insects include Crickets, wax worms, silk worms, mealworms and giant mealworms. • Variety is important as many lizards will lose appetite if fed always the same foods. • Feed various foods to insects to “Gut load” them for variety. • Avoid meal worms with dark brown exoskeleton, hard to digest and can cause obstructions.
Asian Water Dragon	• Adults are mainly carnivorous • Juveniles 80-95% animal matter, and 10-15% vegetable matter
Bearded Dragon	• 60% varied insect diet • 40% Iguana diet. (see www.anapsid.org)
Blue-Tongued Skink	• 50% Vegetable matter (see www.anapsid.org) • 25% chopped rodents, or low fat dog food. • 25% Soft Fruit
Tegus	• 50% Rodents, insects or low fat dog food. • 50% Fruits
Veiled Chameleons	• 40-70% insects • 30-60% vegetable matter Iguana salad (see www.anapsid.org)

DIET

Nutrition is another area that is poorly handled by many amateur and even experienced reptile hobbyists. The following is a generalized review of diet, individual species should have diets tailored to their needs.

Some frequently noted problem areas:

- Feeding solely one type of insect. Even with gut loading, crickets alone are an incomplete diet. Rich in phosphorus and low in calcium. Feeding meal worms, increased risk of impactions and high fat diet.
- Feeding live prey, which results in increased risk of injury and is of questionable ethically from the viewpoint of the prey item. Contrary to some opinion, its a rare animal that wont take frozen thawed or fresh killed. Multiple animals that require live feeding would be a statistical anomaly.

- Starvation secondary to be

Herbivores	
Species	
Tortoise General	• Mixture of leafy weeds and grasses, i.e. dandelion, clover, timothy hay, alfalfa. • In store salad mixtures are a good base, but high in water content which may reduce nutritional value on a dry weight basis. Supplement with moistened rabbit pellets and squash • Fruit should be only a limited ingredient.
African Spur thigh Tortoise	Require much higher fibre levels. Timothy hay should be large part of their dietary intake.
Green Iguana/ Prehensile-tailed skinks.	• 32% high calorie vegetable, ie squash, red pepper, sweet potato or pasnip • 24% green beans and peas • 16% alfafa pellets • 15% Leafy green vegetables. • 4% fruit • See www.Anapsid.org for more complete nutritional information.

Omnivores	
Species	
Box Turtles	• 50-70% Insect matter • 30-50% Vegetable matter • 20-30% Fruit
Red Eared Slider/ Painted Turtle/Musk Turtle	• 60-70% animal matter, including insects, small fish and low fat dog pellets. Avoid raw meat as risk of salmonella poisoning increases • 20-30% green leafy Vegetables. • Often fed trout or salmon pellets that are too rich in protein and will cause pyramiding of the shells.
Asian Water Dragon	• Adults are mainly carnivorous • Juveniles 80-95% animal matter, and 10-15% vegetable matter
Bearded Dragon	• 60% varied insect diet • 40% Iguana diet. (see www.anapsid.org)
Blue-Tongued Skink	• 50% Vegetable matter (see www.anapsid.org) • 25% chopped rodents, or low fat dog food. • 25% Soft Fruit
Tegus	• 50% Rodents, insects or low fat dog food. • 50% Fruits
Veiled Chameleons	• 40-70% insects • 30-60% vegetable matter Iguana salad (see www.anapsid.org)

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FORMAT FOR VETERINARIAN EXPERT REPORT

NOTE: PLEASE READ CAREFULLY! We are asking that you prepare your report using a specific format that may be different than the one that you are accustomed to using. As your report may be used in either civil or criminal proceedings it is important that your report adhere to the following format:

General Requirements for Admissibility

The British Columbia *Evidence Act*, R.S.B.C. 1996 c. 124 and the *Rules of Court* provide that the report of an expert may be admitted as evidence at trial without requiring the expert to appear as a witness. In order for the report to be admissible, it must set out the following:

(a) The expert's qualifications;
(b) the facts and assumptions on which the expert's opinion is based; and
(c) the signature of the person primarily responsible for the content of the report.

The Facts and Assumptions Requirements

There has been a number of cases where expert reports have been deemed to be inadmissible or unpersuasive because the reports failed to specifically set out the facts and assumptions on which the experts' opinions were based.

Mr. Justice Lowry, in *Croutch v. BC Woman's Hospital,* 2001 BCSC 995 stated that:

> I consider it preferable that a statement of expert evidence (most often referred to as an expert's report) begin with a clear statement, or perhaps reference to an annexed letter of request, sufficiently specifying the nature of the opinion sought so as to make it immediately evident why the opinion is required and what it is that must be proven with this kind of evidence. The facts upon which the opinion is based - and only those facts - should then be set out in as complete and concise a statement as the circumstances will allow. The opinion, including the reasoning applied, should be expressed in the simplest terms bearing in mind that the challenge an expert witness faces is to make the evidence easily understood.

Mr. Justice Lowry provided further clarification in the case of *Rowe v. Bobell Express Ltd.*, 2003 BCSC 472 where he said as follows:

> Rule 40A of the Rules of Court permits the opinion of an expert witness to be proven by tendering a statement of the opinion without the necessity of the witness being called. The statement must, however, contain the facts and assumptions on which the opinion is based. As I have said before, it is my view that the statement should set out all the facts necessary to the opinion, but only those facts.
>
> The facts, known or assumed, should be immediately apparent. The reader should not have to cull them out of pages recording what was said in the course of interviews or observed during examinations or revealed by tests administered.

Suggested Format of Your Report

We ask that you structure your report as set out below. In the event that the suggested structure is unworkable for any reason, please call the senior animal protection officer to discuss.

1. Statement of Qualifications

Your report should indicate that you are a duly qualified veterinarian licensed to practice within British Columbia. Your report should also contain a statement of your qualifications including particulars such as your education, training, fellowship, specialties, years in practice and type of practice. It may be convenient for you to attach a current *curriculum vitae* to your report.

2. The Purpose of Your Report

Please include a short statement that sets out the scope and purpose of your report.

3. Facts and Assumptions

Please state clearly and concisely the key facts and assumptions on which your opinions are based. The facts could include things such as your observations of the property (eg. water dish was absent, 2 bales of hay). If you wish, you may indicate the relative degree of importance of any particular fact or assumption. You may also wish to provide separate itemized lists of facts and assumptions corresponding to the various opinions that you have been asked to provide (i.e. diagnosis, causation, prognosis etc.)

4. Opinion

Please state your opinion on the issues that you have been asked to address along with your analysis and reasoning. In the majority of cases, the opinion sought includes whether or not the

animal that you examined met one or more of the conditions set out in the definition of "distress", as defined by the *Prevention of Cruelty to Animals Act*, R.S.B.C. 1996, c. 372 (the "Act"), and what caused the distress.

Distress has been defined in the Act at section 1 (2) as follows:

> For the purposes of this Act, an animal is in distress if it is
>
> (a) deprived of adequate food, water, shelter, ventilation, space, care, or veterinary treatment,
> (a.1) kept in conditions that are unsanitary,
> (a.2) not protected from excessive heat or cold,
> (b) injured, sick or in pain or suffering, or
> (c) abused or neglected.

You would also typically be asked to provide your opinion as to whether the animal had to be removed from the property in order to alleviate the distress. It can also be extremely important to provide details as to the duration of the "distress", how long it would take for an animal to get in that condition of "distress" and any other pertinent information regarding the severity of the "distress."

5. Appendices

You may wish to append to your report the following information:

- a list of the records that you have reviewed and any comment you may have on those records;
- the result of your examination and/or testing;
- any photographs which were taken of the animals; and
- any recommendations for future care.

Appendix N: Recommended Diagnostics for Cruelty Cases by Type

The following diagnostics should be considered for cases that are part of cruelty investigations. ***All diagnostics must be approved by the Lead Investigator.*** When immediate approval is not possible**, please err on the side of collecting samples even if they may not be submitted**. The BC SPCA will consider a number of factors including budget and may not be able to perform all listed diagnostics in every case. The below generally apply to live animals but some gross examination and sample collection aspects (i.e. entomological) may also apply to deceased animals. The Lead Investigator can provide additional information regarding logging and storage of collected evidence. See Evidence and Sample Collection section at end of document for more details.

Condition or Suspected Condition	**Physical Findings**	**Recommended Samples and Diagnostics**	**Notes and Tips**
Asphyxia – strangulation, hanging, choking, smothering, drowning	Strangulation/Hanging: Ligature bruising pattern, crushing injury to skin/blood vessels/tissue, inflammation of surrounding tissue, tracheal crushing, edema of larynx/lips/eyelids/tongue, eye hemorrhage. Examine carefully for signs of sexual abuse. Choking: foreign material in airway, or evidence of trauma or chemical causing laryngeal swelling. Smothering: signs consistent with struggle such as claw marks around neck during attempt to remove object, facial abrasions/contusions, trace evidence may be found under nails. Drowning: signs relating to hypoxemia, pulmonary damage.	*Radiographs*: chest/neck *Blood samples*: collect and hold LTT, SST in case needed for DNA evidence or diagnostic tests (would be based on clinical need). *DNA swabs:* If fingernail marks, sexual abuse, or any trace evidence suspected from contact with abuser. Near-drowning cases: collect any vomitus or water coughed up; water should also be collected from the crime scene.	Hanging victims may also have dragging/blunt force injuries and cervical spinal fractures. Save all recovered objects as evidence including bags, knots, ligatures, foreign material etc. Check victim's nails, collect debris from nails/pads and swipe feet across paper to preserve trace evidence.
Blunt trauma- dragging, throwing, swinging, hitting, kicking	Dragging/throwing cases may have embedded debris in haircoat or feet. Exam findings may include contusions, abrasions, lacerations, frayed nails, torn	*Shave* all areas of suspected trauma to look for contusions even if not seen on initial exam. Monitor, document, and photograph contusion pattern for 48 hr post-trauma. Include location, size,	Save all recovered objects and material as evidence including knots, ligatures, foreign material etc. Concurrent fractures, lacerations, and

Condition or Suspected Condition	Physical Findings	Recommended Samples and Diagnostics	Notes and Tips
	footpads, pain, degloving, avulsions (subcutaneous or limbs), ligatures or ligature marks (edema, swelling, eventual necrosis), fractures (bone, teeth). Head trauma cases may have facial asymmetry, petechiae, ruptured TM (do full otoscopic exam). Cardiopulmonary function may be compromised. Reptiles can present with fractures that are pathological in nature (i.e. nutritional deficits, that are not associated with trauma).	shape (may connect to potential weapon). *Blood and urine samples*: collect and hold LTT, SST, urine in case needed for DNA evidence or diagnostic tests (would be based on clinical need). *Radiograph:* affected body areas (anywhere with soft tissue injury), or if repetitive injury suspected, radiograph ribs and long bones. Facial trauma-radiograph zygomatic arches.	cardiopulmonary injuries are common in dogs with shearing/degloving injuries. Check victim's nails, collect debris from nails/pads and swipe feet across paper to preserve trace evidence.
Burns – thermal, chemical, electrical	Erythema, blistering, edema, skin destruction and necrosis. Severe burns > 20% of body surface area may cause systemic effects (shock, sepsis, organ failure, cardiac dysfunction). Examine mouth as animal may have groomed off evidence Additional injuries may be present (blunt trauma, ligature, bindings). Lesions may worsen over first 5 days; do serial exams. In Reptiles most commonly see burns on ventral belly (heat mats) or on back (heat lamps)	*Photograph* burn pattern. *Smell* wound for chemicals. *Swab* skin and surrounding fur. *Swab wound before and after* treatment for chemical analysis *Blood, urine, fecal samples*: collect and hold LTT, SST, urine, feces in case needed for DNA evidence or diagnostic tests (would be based on clinical need). Consider *histopathology* for more focal or repetitive patterns (i.e. cigarette burns).	Check victim's nails, collect debris from nails/pads and swipe feet across paper to preserve trace evidence. Save all bags, objects and recovered materials as evidence. If animal found outside and you are in the field with no investigator present, take soil samples from where animal was and adjacent areas.

Condition or Suspected Condition	Physical Findings	Recommended Samples and Diagnostics	Notes and Tips
Confinement, inappropriate or prolonged	Often known history of prolonged confinement (crate, closet, short tether etc.). Muscle atrophy, overgrown nails, injuries consistent with escape attempts (broken nails, broken front teeth, skin abrasions and lacerations), chronic skin lesions (pressure calluses, untreated wounds, alopecia/dermatitis of ventral neck [prolonged tethering]), lesions consistent with repetitive behaviour (worn teeth with "bar-biting pattern," lick granulomas, nail wear patterns). Behaviour findings may include fear, frustration. Often includes poor hygiene/neglect component (see below). May have untreated illness/injury, starvation or signs of infectious disease (especially with large groups)- see below.	*Blood, urine, fecal samples*: collect and hold LTT, SST, urine, feces in case needed for DNA evidence or diagnostic tests (would be based on clinical need). *Photograph* from multiple angles and include close-ups of areas of concern. *Radiographs* if suspicion of trauma or to document loss of muscle mass or bone density; all emaciated animals should ideally have abdominal radiographs to assess and document contents of GI tract.	Save all recovered objects and material as evidence including crates, containers, tethers, mats, clipped nails, etc.
Dog fighting	Dogs of any age or sex can be used for fighting. Dogs under 18 months will typically have fewer scars. <u>Oral cavity:</u> bite wounds, buccal/gingival mucosal damage from use of break stick (premolar/molar area), dental wear (from chewing on chains or tethers). <u>Body:</u> wounds in various stages of healing, scars- majority on front limbs	*Collect buccal DNA swabs* from each dog in group. *Make a "scar chart"* – documenting scars and wounds separate from other PE findings (blue pen for scars/healed wounds; red pen for fresh/healing wounds). *Blood, urine, and fecal sampling:* collect and hold LTT, SST, urine, feces	Samples may be used for diagnostic testing, DNA analysis, or toxicology. Anemia, GI parasites, Babesia are common findings. Dog fighting training, medical equipment, and restraints (heavy chains) may be recovered with the dog(s) and should be saved as

Condition or Suspected Condition	Physical Findings	Recommended Samples and Diagnostics	Notes and Tips
	and face/neck/chest, but may also be present on hind legs and ventrum; fractures; skin lesions consistent with chronic confinement (see above). May have findings consistent with the use of steroids, analgesics, hormones, or diuretics.	in case needed for DNA evidence, toxicology, or diagnostic tests (would be based on clinical need). *Recommended diagnostic tests* include CBC, biochemistry panel, fecal flotation, radiographs (may have fractures in various stages of healing). Consider testing for Babesia if dog(s) originated in or live in an area where Babesia is present.	evidence. See Veterinary Forensics: Animal Cruelty Investigations textbook in References for more details and information on making a scar chart.
Embedded collar or halter	Pressure necrosis of neck at area of collar or on face for halter. Tissue swelling and edema of face and neck above collar or halter. Pain, difficulty swallowing, decreased movement of head/neck. Concurrent malnutrition, starvation, dehydration are common. Examine carefully for evidence of additional abuse. If animal was tethered, refer also to above "Confinement-inappropriate or prolonged" section.	*Blood, urine, and fecal sampling:* collect and hold LTT, SST, urine, feces in case needed for DNA evidence or diagnostic tests (would be based on clinical need). *Photograph* before and after treatment. *Measure* depth and width of wound. *Wedge biopsy* (perpendicular to wound, include haired tissue to depth of wound): histopathology to age wound. *Compare circumference of neck* in an area that is not swollen to 1) swollen area and 2) circumference of collar when fastened.	Wear gloves to handle the collar or halter. Cut to remove (do not unfasten as this may remove trace evidence). Save collar or halter and any other materials recovered as evidence. Document odour, hemorrhage, discharge, and physical deformity resulting from the collar or halter; consider what should have been obvious to an owner when writing formal report.
Gunshot or projectile wounds	Presence of entry +/- exit wound. May look like puncture, bite or laceration. Entry wounds tend to have hair "forced	All gunshot victims should have *full-body radiographs* to assess location of	Collect all surface, wound, or wound tract evidence (swab or scrape to collect gunpowder grains if present).

Condition or Suspected Condition	Physical Findings	Recommended Samples and Diagnostics	Notes and Tips
	in" and exit wounds "forced out." Additional findings may include lameness, fractures, dyspnea, pneumothorax, hemothorax, cardiac tamponade, hemoabdomen, peritonitis, lethargy. Examine carefully for additional injuries (i.e. blunt force trauma)	projectile(s) and extent of injuries. *Blood, urine, and fecal sampling:* collect and hold LTT, SST, urine, feces in case needed for DNA evidence, toxicology, or diagnostic tests (would be based on clinical need). *Photograph* each wound, shave, then repeat photograph Projectiles (bullets, pellets, fragments) should be removed with gloved fingers or protected instruments to avoid marking the surface and saved.	Describe appearance and location of all recovered evidence in record. Carefully document all wounds and powder patterns. Consider an alphanumeric wound identification system if multiple wounds are present (i.e. A1 is entrance wound, A2 is associated exit wound). Describe wound appearance, location, and surrounding features.
Hyperthermia (heat stroke)	(Most references describe cases in dogs; exact signs and progression will depend on nature of case) Elevated body temperature (Starts once over 41°, by 43°C dog will die within 15 minutes). Tachypnea, panting, respiratory distress, dehydration, vomiting/diarrhea (sometimes with blood), collapse, mental depression, coma, seizures, death. <u>Cats</u>: in early phase may also groom for evaporative cooling.	*Blood, urine, and fecal sampling:* collect and hold LTT, SST, urine, feces in case needed for DNA evidence, toxicology, or diagnostic tests (would be based on clinical need). *Photograph or take video* of animal and any visible physical abnormalities.	Document the heat index (heat and humidity) at the time of day the animal was found.
Hypothermia (cold environmental temperatures, cold water immersion)	Shivering, piloerection, heat seeking, peripheral vasoconstriction, decreased heart/respiratory rates, muscle stiffness, weak pulses, hypotension, CNS	*Obtain serial body temperatures.* If found outside note environmental temperature. *Blood, urine, and fecal sampling:*	

Condition or Suspected Condition	Physical Findings	Recommended Samples and Diagnostics	Notes and Tips
	depression. Progresses to peripheral vasodilation, cardiac arrhythmias, coagulopathies, coma, absent PLR/corneal reflex, death. Necrosis of exposed tissue ("frostbite,") especially extremities (ears, tail, scrotum, mammary glands, digits, flank skin folds). Neonates, geriatrics, injured animals, and animals with concurrent illness compromising ability to produce heat are at higher risk: cachexia, shock, immobility, toxins, neurologic/ cardiac/ metabolic/ endocrine disease.	collect and hold LTT, SST, urine, feces in case needed for DNA evidence, toxicology, or diagnostic tests (would be based on clinical need). For frostbite cases, do *serial exams* and photographs. Full extent of tissue damage may take 4-15 days to occur.	
Infectious disease, widespread (i.e. hoarding cases)	Some or all animals may be underweight or emaciated. See below. Additional clinical findings: pruritus, poor haircoat (sparse, brittle), alopecia and crusting (ringworm), decreased melanin deposition (cats) causing "red coat," decubital ulcers, secondary infections, oral/dental disease (gingivitis, stomatitis, oral ulcers), diarrhea, vomiting, soft stool, sneezing, coughing, conjunctivitis, oculonasal discharge. Reptiles will most commonly exhibit oral mouth lesions, necrotic tails or poorly shed skins.	*Blood, urine, and fecal sampling:* collect and hold LTT, SST, urine, feces in case needed for diagnostic tests (would be based on clinical need). *Radiographs* as indicated. Will often need *population-level screening for infectious disease* via conjunctival/pharyngeal swabs, hair samples ("toothbrush samples"), and other tests (Lead Investigator will consult with BC SPCA Animal Health veterinarian) *Photograph* all significant physical findings with animal identifier visible in photograph.	Samples must be collected as close to intake as possible, prior to any vaccines, parasite control, or antibiotic administration.

Condition or Suspected Condition	Physical Findings	Recommended Samples and Diagnostics	Notes and Tips
Injury or illness, untreated	Will depend on nature of injury/illness. Do thorough exam including oral cavity for chronic/untreated oral/dental disease. Wounds may be severely infected or partially healed. Fractures may be partially healed or have malunion or non-union. Skin may show signs of chronicity: lichenification, hyperpigmentation. Reptiles will often present with pathological fractures secondary to nutritional deficiencies.	*Blood, urine, and fecal sampling:* collect and hold LTT, SST, urine, feces in case needed for DNA evidence, toxicology, or diagnostic tests (would be based on clinical need). *Radiographs* as indicated (if any suspicion of trauma, emaciation, or diagnostically indicated). Other diagnostics as indicated. *Photographs* as indicated, may want to take serial photographs including before and after treatment.	Collect and hold all materials that come with or from the animal (collars, matts, nail clippings, etc.). If insect evidence present, see above "Insect activity- deceased or live animals." Consider whether animal is in pain (use pain scoring system), other forms of physical and psychological suffering, how long it would take for the given disease process to cause the animal's current state, and what should be obvious to an average owner.
Insect activity- deceased or live animal	Myiasis: the colonization of a living animal by dipteran fly larvae (maggots). Findings may include fly eggs or larvae in wounds, orifices, mats, etc. Risk factors for myiasis: neglect, living primarily outdoors, unnoticed injury, long/ungroomed coat with matting and/or urine and fecal soiling, geriatric age. Deceased animals: fly larvae appear first in wounds and orifices, but eventually fly and/or beetle larvae may be found	*Photograph* any significant lesions, maggots, or maggot masses. *Collect samples* from the body and from the ground around the body (could be up to several metres away). If different ages and/or sizes of maggots, pupae, or pupal cases are present, collect each type and label separately. Be sure to include the oldest/largest maggots. *Take temperature* (place thermometer gently on surface and depress with	Samples ideally would be collected by a forensic entomologist or experienced investigator; in the absence of these options, vets may need to collect evidence. Preserve HALF of the maggots in alcohol (90%) and keep HALF of the maggots alive. Do not put pupae or pupal cases into alcohol. See Appendices J and K: Use of Forensic Entomology in Animal Cruelty

Condition or Suspected Condition	Physical Findings	Recommended Samples and Diagnostics	Notes and Tips
	anywhere on or around the body.	finger to roll thermometer into mass without disturbing the tissue) and note size of any large maggot masses.	Investigations and Collection of Insect Evidence Form.
Neglect, overall, including hoarding cases	Individual animals: untreated illness, untreated injury, emaciation, mats, urine/fecal soiling, burdocks in mane and/or tail. Overgrown hoofs in farm animals. Reptiles will often exhibit mouth rot, areas of poor or incomplete sheds. See other sections for specific issues. Puppy mills: skin/ coat/ foot/ nail problems, infectious diseases, genetic conditions, dental disease, reproductive issues (mammary tumours, pyometra, mastitis), behaviour problems (fear/phobias, aggression, separation-related issues, lack of housetraining, decreased trainability, and decreased ability to cope with novel situations). Hoarding cases: skin/ coat/ foot/ nail/hoof problems, internal and external parasites, other infectious diseases (viral [especially URI in cats], fungal, bacterial), dental disease, malnutrition, starvation, fear of people or novel experiences. Reptiles will present with excessive feces in cage, old sheds and dead food items.	*Blood, urine, and fecal sampling:* collect and hold LTT, SST, urine, feces in case needed for DNA evidence or diagnostic tests (would be based on clinical need). *Radiographs:* Any affected body part. For muscle atrophy take comparison view of contralateral limb. Hoarding cases: will often need *population-level screening for infectious disease* via conjunctival/pharyngeal swabs, hair samples, and other tests (consult with BC SPCA Animal Health veterinarian). *Photograph* all significant physical findings with animal identifier visible in photograph. Consider serial photographs. For *reptiles* very important to collect temperature and UV light evidence. *Radiographs* of enclosure for living conditions essential.	Collect and hold all materials that come with or from the animal (collars, matts, nail clippings, etc.). If insect evidence present, see above "Insect activity- deceased or live animals." Consider whether animal(s) is/are in pain (use pain scoring system), other forms of physical and psychological suffering, how long it would take for the given disease process to cause the animal's current state, and what should be obvious to an average owner.

Condition or Suspected Condition	Physical Findings	Recommended Samples and Diagnostics	Notes and Tips
Poisoning/ toxicity	History may be consistent- need careful history including environment. Clinical findings vary greatly depending on toxicant. Some toxicants have distinctive odours. Often, response to symptomatic therapy can support tentative clinical diagnosis. The most common agents used in malicious poisonings in North America are rodenticides and ethylene glycol, followed by organophosphates, carbamates, strychnine, caffeine, and methylxanthines.	*Blood, urine, and fecal sampling:* collect and hold LTT, SST, urine, feces, and vomitus or gastric contents if available in case needed for toxicology or other diagnostics (would be based on clinical need). *Radiographs* of GI tract may be indicated. If an OTC drug testing kit is used to guide clinical decision-making, samples should also be submitted to a reference laboratory in cruelty or legal cases (OTC human tests have not been validated in animal species).	Collect and hold all physical evidence including packaging, toxicant, etc. If the animal dies or is euthanized (or euthanasia is planned), initial blood and urine samples should still be collected and submitted with the necropsy sample.
Psychological abuse, harsh training, psychological distress	Physical injuries may include bruising or scarring around neck from inappropriate collars or inappropriate use of collars. Bruising and/or scarring on face or mouth from halters or bridles in horses. Bruising or more serious injuries can result from being kicked or thrown (see above). Must do careful PE with palpation of all bones, otoscopic, and oral exam. Psychological signs of distress may include profound behavioural inhibition ('shut down' behaviour), distress behaviour such as extreme escape or repetitive behaviours, or lack of	*Radiographs:* to determine extent of damage to underlying tissues of any bruised or scarred areas. *Blood, urine, and fecal sampling:* Biochemistry profile, complete blood count, urinalysis, etc. to rule out underlying medical causes for abnormal behaviour. Collect and hold LTT, SST, urine, feces in case needed for DNA evidence toxicology, or diagnostic tests (would be based on clinical need). *DNA swabs* if any trace evidence suspected from contact with abuser.	

Condition or Suspected Condition	Physical Findings	Recommended Samples and Diagnostics	Notes and Tips
	appetitive or elimination behaviours in the absence of a medical cause. Behavioural responses out of context with the level of threat (e.g. sensitivity to movement of feet may indicate history of being kicked) may indicate past negative experiences and should be recorded. Extreme "head shy" behaviour may occur in farm animals.		
Repetitive abuse	History may be inconsistent with injury or injuries. Skin, soft tissue, dental, or bone injuries in various stages of healing; muscle atrophy, pain, or dysfunction related to repetitive fractures. Must do careful PE with palpation of all bones, otoscopic, and oral exam. Observe behaviour carefully and document (signs of fear around owner but not others, etc.).	*Radiographs:* All long bones, chest, spine, any other affected body part. For muscle atrophy take comparison view of contralateral limb. *Blood, urine, and fecal sampling:* collect and hold LTT, SST, urine, feces in case needed for DNA evidence toxicology, or diagnostic tests (would be based on clinical need). *DNA swabs* if any trace evidence suspected from contact with abuser.	Consider whether animal(s) is/are in pain (use pain scoring system), other forms of physical and psychological suffering, how long it would take for the given disease process to cause the animal's current state, and what should be obvious to an average owner.
Sexual abuse	Physical injuries range from mild to fatal and may involve the anus, perineum, rectum, colon, vulva, vagina, uterus, scrotum, penis, or cloaca (birds). Findings may include hemorrhage, inflammation (acute or chronic), tears, scarring, bruising/abrasions, ligatures around the genitalia (males), testicular/scrotum necrosis (post-	Examine entire animal with a *UV light* (Woods Lamp) to detect trace or biological evidence (semen, saliva, urine, fibers, pubic hair). *Blood, urine, and fecal sampling*: collect and hold LTT, SST, urine (free catch preferred in female patients), feces in case needed for DNA evidence, toxicology, or diagnostic	Wear gloves, cap, and gown to collect evidence to avoid contamination and protect against exposure to human bodily fluids. Collect and hold trace evidence from feet (brush across paper or if animal deceased or euthanized, place paper bags over feet before necropsy) and haircoat (comb, sample any hair with

Condition or Suspected Condition	Physical Findings	Recommended Samples and Diagnostics	Notes and Tips
	ligature), penetrating wounds, or foreign bodies (vaginal, cervical, uterine, anal). Injury to the ears or skin or proximal coccygeal fractures from restraint may be seen. Rectal prolapse without a clear cause or vaginal prolapse in a spayed female dog may raise suspicion. Behaviour findings may include signs of fear, anxiety, pain with examination; evidence of being conditioned to "comply" with sexual contact; or avoidance or arousal that is beyond what would be expected during a routine examination.	tests. Any urine or feces voided immediately after suspect sexual abuse should be collected. *DNA swabs:* Collect vaginal, anal, penile, and oral (oral mucosa, lips, canine teeth) swabs depending on nature of case. Perform *vaginal or rectal wash* to collect fluid for evaluation of sperm presence depending on nature of case. *Video* of examination is recommended so behaviour can be analyzed. *Radiographs* should be performed including the tail for any cases involving genital or anorectal contact.	possible human bodily fluids). Sexual abuse of animals is linked to other types of sexual violence, including sexual abuse of children. Concerns about sexual abuse in animals ***should always be reported*** even if the animal has minor or no injuries (for example, cases involving non-penetrative sexual contact or where a child has placed a ligature around an animal's genitalia but there were no injuries).
Sharp force injuries – stabbing, arrows, chopping, mutilation, dog attacks	<u>Stab wounds:</u> appearance may vary depending on type of knife or weapon used, wounds are deeper than they are wide. <u>Incised wounds:</u> appearance may vary depending on type of knife or weapon used, wounds are wider than they are deep <u>Chop wounds:</u> have a blunt force component (abrasions, lacerations, contusions), often with underlying bone	*Radiographs:* any affected body part. *Blood, urine, and fecal sampling:* collect and hold LTT, SST, urine, feces in case needed for DNA evidence toxicology, or diagnostic tests (would be based on clinical need). *DNA swabs* if any trace evidence suspected from contact with abuser or predator. In *cases where a dog has killed a person or other dog*, in addition to	Carefully document all wounds, describing wound appearance (length, width, depth, directionality, margins, angles, location, and surrounding features. If object or weapon is recovered, handle with gloves to preserve trace evidence and fingerprints.

Condition or Suspected Condition	Physical Findings	Recommended Samples and Diagnostics	Notes and Tips
	damage Internal injuries may include laceration of major vessels or organs, fractures, hemothorax, pneumothorax. Object may still be present (remove with caution). <u>Mutilation, predator or dog attacks:</u> members of the public may present live or deceased animals for examination; careful examination can usually determine predator vs mutilation by a human (which will have characteristics described above). <u>Predator attacks:</u> examine for saliva on haircoat, including with UV light. Findings may include: frayed nails, abrasions/dragging injuries, head trauma, dirt/debris in mouth, bite marks on skin surface, deeper punctures, bruising, muscle tears, and fractures.	above: take a thorough history, examine dog for signs of abuse or injury, collect DNA swabs from dog's body, feet, and mouth including any victim's blood, collect a hair sample, perform radiographs (GI tract).	
Starvation/malnutrition- group (i.e. hoarding case)	Some or all animals may be underweight or emaciated. Use BCS 1-9 scale. Ask Lead Investigator about shaving coats of long-haired or matted animals to better assess and show body condition. Additional clinical findings: poor haircoat (sparse, brittle), skin disease, decreased melanin deposition (cats) causing "red coat," decubital ulcers, secondary infections, decreased immune function,	*Blood, urine, and fecal sampling:* collect and hold LTT, SST, urine, feces **at time of intake or initial exam** in case needed for diagnostic tests (would be based on clinical need). At least some of the animals should have *full bloodwork, urine and fecal testing and abdominal radiographs* (to assess contents of GIT)- discuss with the Lead Investigator.	Collect and hold all materials that come with or from the animals (collars, matts, nail clippings, etc.). If insect evidence present, see above "Insect activity- deceased or live animals." Consider whether animals are in pain (use pain scoring system), other forms of physical and psychological suffering, how long it would take for

Condition or Suspected Condition	Physical Findings	Recommended Samples and Diagnostics	Notes and Tips
	gastric erosions and ulcers, melena, oral ulcers, dental disease, dehydration. Ingestion of non-nutritive substances is common in starving dogs. Ingestion of substrate is common in underfed reptiles.	Additional diagnostic tests may be required if widespread infectious disease (see above). Once feeding is deemed safe*, video* of response of animal to food.	the given disease process to cause the animals' current states, and what should be obvious to an average owner.
Starvation/malnutrition-individual	Animal may be obese (form of malnutrition) underweight or emaciated. Use BCS 1-9 scale. Ask Lead Investigator about shaving coats of long-haired or matted animals to better assess and show body condition. Additional clinical findings: poor haircoat (sparse, brittle), skin disease, decreased melanin deposition (cats) causing "red coat," decubital ulcers, secondary infections, decreased immune function, gastric erosions and ulcers, melena, oral ulcers, dental disease, dehydration. Ingestion of non-nutritive substances is common in starving dogs. Obese horses may have severe lameness/recumbency due to laminitis. Reptiles will often present with pathological fractures secondary to nutritional deficiencies (dependant on species).	*Blood, urine, and fecal sampling:* collect and hold LTT, SST, urine, feces **at time of intake or initial exam** in case needed for diagnostic tests (would be based on clinical need). Individual animals found emaciated should have *full bloodwork, urine and fecal testing and abdominal radiographs before* being fed *Photographs* of animal from multiple angles. Once feeding is deemed safe, *video* of response of animal to food. Hoof radiographs in horses with presumed laminitis.	Collect and hold all materials that come with or from the animal (collars, matts, nail clippings, etc.). If insect evidence present, see above "Insect activity- deceased or live animals." Consider whether animal is in pain (use pain scoring system), other forms of physical and psychological suffering, how long it would take for the given disease process to cause the animal's current state, and what should be obvious to an average owner.

Evidence and Sample Collection and Storage

All samples should be labelled with Animal ID, file number, date, time, location, Dr, and sample type. Ensure that the sample is sealed with the collector's signature over the seal. *For diagnostic samples in small tubes, labelling can be limited to Animal ID, file number, and date with the remaining information entered into an evidence collection log (discuss with Lead Investigator). When collecting DNA, microbiology, or trace evidence samples wear protective equipment and avoid any cross-contamination of the samples.*

Blood (stains or on surface of animal): obtain swabs (see DNA swab), if blood is found frozen in snow or ice, collect and keep frozen in tightly sealed tube.

DNA swab: sterile dry cotton or synthetic swab, wear gloves, swipe across surface multiple times, allow to dry after collection then place in folded paper unless for diagnostic testing (see below: PCR swabs). Buccal swabs: withhold food and water for 20 min prior to sampling. Swabs of dried areas (i.e. dried blood)- moisten swab with sterile water prior to collection.

Entomological samples: Half of maggots: preserve in 90% alcohol (ideally after submerging in hot water for a few min). Other half (or eggs): place in vial with damp paper towel and food (beef liver or similar) and two layers of paper towel on top held in place by an elastic band. See Appendices J and K.

Feces: place into sterile sample container and refrigerate (if for DNA testing- freeze).

Hair samples (DNA and trace evidence): Obtain hair or fur including roots (do not cut the hair), store in a paper envelope.

Hair samples (toothbrush samples for ringworm): Brush over surface of animal for 30-60 seconds, brush lesioned areas last. Brush until visible hair accumulation in bristles of brush. Place into plastic bag (i.e. Ziploc bag or bag supplied by diagnostic laboratory). Store at room temperature, protect from extreme heat.

LTT: Lavender Top Tube (EDTA) for whole blood. Refrigerate (whole blood should never be frozen).

PCR swabs for diagnostic testing (conjunctival, nasal, pharyngeal) can have stems broken to shorter length and be placed into sterile glass or plastic tubes (i.e. empty white top tube). Refrigerate.

Soil sample: glass container.

STT: Serum Separator Tube (refrigerate for diagnostic purposes; serum and plasma may be frozen for toxicological analysis).

Trace evidence (from haircoat, nails, etc): Use a comb, tweezers, evidence tape etc. to collect hair, fibres, debris onto a paper surface, fold, and label.

Urine: place into sterile tube or container and refrigerate (for sexual abuse cases in females, free catch is preferred). If for DNA testing- freeze.

Vaginal or Rectal wash (sexual abuse cases): Perform after collection of initial swabs. Use sterile saline and sterile supplies (red rubber catheter, syringes). Infused and re-aspirate several times. Store samples in sterile glass tubes and refrigerate.

Water samples (from environment or water or vomitus collected from a drowning cases): glass container.

The BC SPCA gratefully acknowledges the contributions of Dr. Bettina Bobsien (equine, farm animals) and Dr. Adrian Walton (exotics) to this reference document.

References

BC SPCA Animal Cruelty Conference 2016

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Veterinary Forensic Science and Medicine Course 1 (2014): http://www.vetfolio.com/forensics

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[redacted]

On [redacted] I was asked by Special Constable [redacted] to examine three dogs, a golden retriever, a great pyrenees and a miniature poodle.

Great Pyrenees. A young adult intact male. Body score 3/9 which is significantly underweight, but could be normal if animal is under 14 months old and still growing, if the animal is fully mature, the animal is underweight. The animal had minor tartar suggesting the animal is a full grown adult, but poor diet can produce tartar in even young animals. There was debris in both ear canals and aural cytology confirmed that the animal was suffering from mild otitis external secondary to a yeast called malassesia. The animal was prescribed surolan to deal with the infection.

Golden Retriever. Mature intact male. This animal has severe dental disease on all arcades, the user 4th premolar on the right side is missing, there is no evidence that it was surgically extracted (ie no surgical flap) leaving a large and deep pocket with evidence of infection. Severe halitosis. Full month dental extractions may be warranted in this case. This animal had sever otitis externa and was prescribed surolan. Heav matting on the ventral belly and perirectal region and is in need of a pedicure. The animal was slow to get up and may be suffering from hip dysplasia. Muscling was poor which may be contributing to the animals mobility issues. I am recommending radiographs under sedation as the animal resisted extension of the hind limbs and maybe difficult to acquire proper radiographs of the hip. Green purulent material oozing from prepuce, recommend regular washing of the penis to reduce the discharge.

Miniature Poodle - [redacted] The animal presented with very long and dense coat that had matted considerably. Fecal material was adhered to the perirectal region and required shaving to excise. Body score was assessed initially at 3/9 but reduced to 2/9 post shaving as the matting was obscuring the musculature. Heavy matting over the right eye obscured vision and the initial thought was that the eye had been damaged or missing. Shaving carefully we were able to expose the eye, it had been adhered shut. Ocular examination found no damage to the eye. Due to the heavy matting the animal had to be

shaved. The choke collar was found to have been twisted or shortened to the point that it could not be removed and had to be manually undone for removal. The animals muscling was quite poor and the animal could be seen to be favouring the left leg. Later radiographs would reveal that the hip had suffered traumatic avulsion of the femoral head socket resulting in a dislocated hip and fractured rim of the acetabulum (see radiology report, Appendix I). The dog was given pain control and regained much of his mobility secondary to it. He will be likely on pain control for the rest of his life, but surgical removal of the femoral head would ameliorate a lot of the discomfort. Oral examination found lots of dental disease and likely several extractions. Gums recession was significant as was the accumulation of tartar. During this examination the animal was very sensitive to the left side. The initial though was that the teeth were loose and painful, but on closer examination there appeared to be a laxity in the jaw. Radiographs confirm that the left side of the jaw suffered a traumatic fracture (not secondary to osteomyelitis ie bone infection, or neoplastic process) See radiology report. This fracture is quite far back in the jaw and will require examination under anaesthesia to assess. Unsure if this is a surgical repair or allow to fuse. Recommend dental assessment with a board certified dental specialist if possible. Better radiographs under anaesthesia is warranted.

Summary - The great pyrenees while underweight and mild otitis was overall healthy. The Golden retriever and the poodle are both suffering from very painful dental disease and are facing multiple extractions. Dental pain in dogs is assessed as similar to the pain humans suffer with similar dental pathology. Due to this, we have recommended that these animal be on pain control until such time as medical intervention can be done to relieve the distress.

The biggest medical concern is that of the miniature poodle, this animal has at some point suffered acute trauma to the left side of the animal, the femoral head is dislocated, and the trauma was sufficient to fracture the rim of the acetabulum (ie the pelvic socket where the femur connects to the pelvis). The animal has adjusted and is functionally mobile but the grinding of the femoral head against the dorsal surface of the pelvis is a source of pain and discomfort. To fix this defect, a surgical incision will need to be made over the pelvis, dissecting down to the dislocated femur and cutting off the femoral head, allowing for a false fibrous joint to form. This dog is also suffering from an oblique mid left mandibular fracture. The injury appears to be chronic in nature and a degree of fibrous scar tissue has formed to provide some stability. We know that this animal will require several dental extractions, and it may be feasible to wire the jaw at that time to provide a degree of stability and to allow for healing. An estimate for

both these surgeries are provided in appendix II. The heavy matting, combined with urine staining, fecal material and the occluded left eye all indicate poor general welfare. This animal had acquired several months, possibly even years of hair that had to be shaved off. Upon presentation this animal appeared dull and lifeless, shaving off the matted fur, providing a degree of pain relief has dramatically improved this animals quality of life. Surgical and dental intervention will provide this animal with continued relief from pain and improve mobility and overall welfare.

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[redacted], [redacted]

Report to SPCA re: [redacted]

I was asked to attend at the above noted address by Animal Protection Officer [redacted] on this date to give expert medical assessment and opinion regarding a large group of horses kept at this property. I was in attendance at this location [redacted] hours to [redacted] hours. The weather was noted to be12 degrees Celsius and it was noted to be raining. Also in attendance at the property were Senior Animal Protection Officer [redacted] and one other SPCA employee.

Horses were examined in order of the numbering indicated below. Horses 1-6 were noted to be running free in a yard adjacent to the house and were examined (as noted below) outside in this yard. Horses 7-13 were in stalls in the barn and were examined (as noted below) in this barn. Horses 14-16 were in a large paddock adjacent to the barn. None of these horses were examinable because of the deep mud that precluded having any access to these horses.

Two fecal samples were collected for analysis for fecal parasites. One fresh sample was collected from the front yard and a second sample was collected from just inside the gate in the main paddock area. Both samples were analyzed by zinc sulphate suspension technique. Both samples had large numbers of Oxyuris round worm parasites present.

1) [redacted]:

1.5 year old Paint colt. Body Condition Score (BCS) 3/9. On close examination, the following areas of concern were noted:

- All hooves were markedly overgrown and cracked
- Marked, patchy dermatitis particularly on hind limbs
- Dramatic pruritis (horse noted to be rubbing vigorously against trees)
- Lice noted on examination of coat
- Undescended testicle

Recommendations for Treatment and ongoing care for this horse include the following:

- Have hooves trimmed

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- Treat lice appropriately (administer dose-appropriate ivermectin at 14 day intervals for 2 doses. This will also treat for intestinal parasites.
- Treat with appropriate deworming medications at no more than 8 week intervals.
- Feed diet appropriate to attain and maintain a BCS of 4-4.5/9

2) [redacted]:

30+ year old chestnut pony mare. Body Condition Score (BCS) 1.5/9. On close examination, the following areas of concern were noted:

- Marked dental pathology
- Emaciation

Recommendations for Treatment and ongoing care for this horse include the following:

- Corrective dental treatment required immediately and performed by a veterinarian
- Feed a high quality, easily digestible seniors diet appropriate to attain and maintain a BCS of 4-4.5/9.
- Treat with appropriate deworming medications at no more than 8 week intervals.

3) [redacted]:

20+ year old bay Arab mare. Body Condition Score (BCS) 1.5/9. On close examination, the following areas of concern were noted:

- Dental pathology (presence of molar arcade ramps)
- Emaciation
- Dermatitis
- Lice
- Overgrown hooves.

Recommendations for Treatment and ongoing care for this horse include the following:

- Corrective dental treatment
- Feed a high quality, easily digestible seniors diet appropriate to attain and maintain a BCS of 4-4.5/9.
- Have hooves trimmed

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- Treat lice appropriately (administer dose-appropriate ivermectin at 14 day intervals for 2 doses. This will also treat for intestinal parasites.
- Treat with appropriate deworming medications at no more than 8 week intervals.

4) [redacted]:

7 year old bay Standardbred gelding. Body Condition Score (BCS) 1.5/9. On close examination, the following areas of concern were noted:

- Generalized dermatophilosus (rain scald)
- Lice
- Emaciation

Recommendations for Treatment and ongoing care for this horse include the following:

- Treatment appropriate for the resolution of generalized rainscald (topical treatment with appropriate daily grooming and use of a topical disinfectant such as Betadine solution and antibiotics Corrective dental treatment
- Feed a diet appropriate to attain and maintain a BCS of 4-4.5/9.
- Treat lice appropriately (administer dose-appropriate ivermectin at 14 day intervals for 2 doses. This will also treat for intestinal parasites.
- Treat with appropriate deworming medications at no more than 8 week intervals.

5) [redacted]:

Mature adult spotted Appaloosa mare. Body Condition Score (BCS) 4/9. Not able to perform a close examination. Distant exam did not reveal any significant concerns.

6) [redacted]:

19 year old bay Thoroughbred gelding. Body Condition Score (BCS) 2/9. On close examination, the following areas of concern were noted:

- Large wound on withers consistent with an ill-fitting blanket
- Lice
- Dermatitis with hairloss on lateral body wall and down limbs

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- Markedly underweight

Recommendations for Treatment and ongoing care for this horse include the following:

- Ensure that a blanket that is utilized is properly fitted to ensure that it does not create wounds
- Feed a diet appropriate to attain and maintain a BCS of 4-4.5/9.
- Treat lice appropriately (administer dose-appropriate ivermectin at 14 day intervals for 2 doses. This will also treat for intestinal parasites.
- Treat with appropriate deworming medications at no more than 8 week intervals.

7) [redacted]:

3 year old Paint mare. Body Condition Score (BCS) 4/9. No close examination performed. Noted to have edematous distal hind limbs (likely from standing in a stall for an extended period).

Recommendations for Treatment and ongoing care for this horse include the following:

- Treat with appropriate deworming medications at no more than 8 week intervals.

8) [redacted]:

16 year old white Arabian gelding. Body Condition Score (BCS) 4/9. No close examination performed.

Recommendations for Treatment and ongoing care for this horse include the following:

- Treat with appropriate deworming medications at no more than 8 week intervals.

9) [redacted]:

16 year old bay Arabian-x stallion. Body Condition Score (BCS) 2.54/9. No close examination performed. The following areas of concern were noted:

- Underweight

Recommendations for Treatment and ongoing care for this horse include the

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following:

- Feed a diet appropriate to attain and maintain a BCS of 4-4.5/9.
- Treat with appropriate deworming medications at no more than 8 week intervals.

10) [redacted]:

3.5 year old bay Standardbred gelding. Body Condition Score (BCS) 3.5/9. No close examination performed.

Recommendations for Treatment and ongoing care for this horse include the following:

- Treat with appropriate deworming medications at no more than 8 week intervals.

11)"[redacted]":

Adult bay Standardbred horse. Body Condition Score (BCS) 3/9. No close examination performed. The following areas of concern were noted:

- Underweight

Recommendations for Treatment and ongoing care for this horse include the following:

- Feed a diet appropriate to attain and maintain a BCS of 4-4.5/9.
- Treat with appropriate deworming medications at no more than 8 week intervals.

12) [redacted]:

3 year old Paint mare. Body Condition Score (BCS) 3.5/9. On close examination, the following areas of concern were noted:

- Generalized dermatophilosus (rain scald) over back

Recommendations for Treatment and ongoing care for this horse include the following:

- Treatment appropriate for the resolution of generalized rainscald (topical treatment with appropriate daily grooming and use of a topical disinfectant such as Betadine solution and antibiotics

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- Treat with appropriate deworming medications at no more than 8 week intervals.

13) [redacted]:

20 year old roan mare. Body Condition Score (BCS) 4/9. On close examination, the following areas of concern were noted:

- Heaves (previously diagnosed and presently being treated with Ventipulmin Syrup)

Recommendations for Treatment and ongoing care for this horse include the following:

- Treat with appropriate deworming medications at no more than 8 week intervals.
- Continue to treat Heaves with regular Ventipulmin

Dr. Mark A. Steinebach

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[redacted], [redacted]

Report to SPCA re: [redacted] – Appendix (Photographs)

All photographs were taken by myself at the time of the inspection of each of the horses depicted.

Figure 1 - Horse 6 ("[redacted]") Alopecia

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Figure 2 - Horse 6 ("[redacted]") Alopecia/Lice

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Figure 3 - Horse 6 ("[redacted]") Blanket rub wound

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Figure 4 - Horse 3 ("[redacted]") BCS 1.5/9

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Figure 5 - Horse 2 ("[redacted]") BCS 1.5/9

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Figure 6 - Horse 1 ("[redacted]") overgrown/cracked hoofwalls

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Figure 7 - Horse 1 ("[redacted]") distal limb dermatitis

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Figure 8 - Horse 1 ("[redacted]") BCS 3/9

Dr. Mark Steinebach

BCSPCA
SPEAKING FOR ANIMALS

PROVINCIAL OFFICE

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Population Health Report

File # [redacted]
Supervising Veterinarian: Emilia Gordon, DVM, BC SPCA Senior Manager Animal Health
Date of Case: [redacted]

SUBJECT OF CASE: 59 cats and 16 dogs from [redacted]

REASON FOR SEIZURE: Owner of animals has a history of failure to provide veterinary care and permitting animals to remain in distress. A warrant was executed [redacted] 84 animals were found on the property. Two animals were in critical distress and required immediate euthanasia. Four neonatal kittens were sent directly into foster care, three animals required immediate veterinary hospitalization, and the remaining 75 animals were sent to BC SPCA facilities where they required immediate assessment for suspected infectious disease including feline upper respiratory infection (URI), dermatophytosis (ringworm), and gastrointestinal parasitism.

POPULATION HEALTH FINDINGS: Physical examination by a veterinarian was performed on all cats at intake and repeated within 24-72 hours after intake. Individual findings are discussed elsewhere and will not be addressed in this report.

URI: Many of the cats showed visible signs of URI at intake. URI was also known to be chronically present in the population. Feline URI is caused by a complex of contagious viral and bacterial pathogens, and is associated with poor housing conditions and poor population management. It can be transmitted directly between cats or indirectly via inanimate objects or human caretakers. It is not airborne.

Clinical signs include sneezing, congestion, conjunctivitis, oral ulcers, and oculonasal discharge and can progress to pneumonia or chronic nasal/sinus infection. 15 of the cats displaying clinical signs were sampled for diagnostic testing to determine what pathogens were present in order to prescribe a population health plan. Swabs were taken from the back of the throat and from the conjunctival membranes and submitted to Idexx Laboratories for polymerase chain reaction (PCR) testing for common URI pathogens.

Results of URI Testing

Pathogen	**# cats testing positive**
Calicivirus	4
Chlamydophila felis	7
Feline Herpesvirus 1	3
Bordetella bronchiseptica	5
Mycoplasma felis	8
H1N1 Influenza Virus	0

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Many cats tested were positive for more than one pathogen, indicating co-infection. Six cats tested negative for all pathogens. All positive cats tested positive for at least one of the bacterial pathogens (Chlamydophila, Bordetella, Mycoplasma). While Mycoplasma can be present in clinically normal cats, both Chlamydophila and Bordetella are not typically detected in clinically normal cats and are highly correlated with poor husbandry practices. Viral shedding (Herpes and Calicivirus) can also occur in clinically normal cats (based on limited studies), but the rates in this population (27% shedding Calici and 20% shedding Herpes) are higher than what is typically reported in studies, as well as being higher than baseline levels observed in other population sampling at BC SPCA facilities over the past few years. There were also two cats diagnosed with pneumonia (via x-rays and/or ultrasound), which is likely a secondary complication from untreated URI. These results indicate that the cats from the [redacted] property were clinically ill due to URI pathogens.

Ringworm: About a third of the cats and three of the dogs showed signs of skin lesions at intake consistent with dermatophytosis or ringworm, a fungal infection of the hair shafts. Ringworm is a contagious and zoonotic condition that can be self-limiting in individual, healthy, non-stressed animals housed in hygienic living conditions. Ringworm can also cause severe disease and/or population level outbreaks in groups of animals who are unhealthy, stressed, or housed in substandard conditions with inadequate biosecurity. The infection tends to be more severe in cats (vs. dogs). Clinical signs include hair loss with varying degrees of inflammation. The infective spores can live for years in the environment and are highly resistant to disinfection except for with specific disinfectants. They can be readily transmitted on inanimate objects and by human caretakers unless strict biosecurity precautions are in place.

Due to the serious nature of this condition in populations of animals, and zoonotic risk to staff, all 75 of the animals who were brought directly to BC SPCA facilities underwent diagnostic testing for ringworm. All animals had toothbrush samples taken (by brushing the coat to collect hair and spores) and plated for fungal cultures at an in-house laboratory, which is the gold standard diagnostic but can take up to two weeks for results. 12 animals also had polymerase chain reaction (PCR) tests for ringworm sent to Idexx laboratories. This test has a lower sensitivity (detection rate) but only take 1-3 days for results.

71 of the 75 animals tested positive for ringworm via fungal culture, and 8 of the 12 animals tested were positive for ringworm (Microsporum) via PCR testing. The culture results are further reported via a quantitative measure based on the number of colonies. P3 is the highest number of colonies (> 10 per plate) and usually reflects active infection with shedding of fungal spores (it can also reflect heavy environmental contamination). 58/59 cats and 8/16 dogs had P3 level positives, with the remaining single positive cat and four positive dogs testing positive at lower levels (P1 or P2, indicating < 10 colonies per plate).

All of the positive cultures were examined microscopically to confirm the species. 69/71 animals were positive for Microsporum canis, the most serious species of ringworm in companion animals. 2/71 animals, both dogs, were positive for Trichophyton mentagrophytes, another ringworm species with similar clinical signs, transmission, and

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treatment. These results indicate that the vast majority of the animals from the [redacted] property were either infected with or heavily exposed to ringworm.

Giardia: Giardia is a protozoal gastrointestinal parasite that infects a variety of mammalian species, including humans. While theoretically zoonotic, transmission between humans and companion animals is currently thought to be rare. Transmission is through the fecal-oral route and is common in high density housing environments with inadequate sanitation practices. Clinical signs include diarrhea, flatulence, weight loss, and less commonly inappetance and vomiting.

Fecal samples (Ova & Parasites with Giardia ELISA through Idexx Laboratories) were run individually on 12 cats and a pooled sample from 8 dogs. The canine sample was pooled because if any dogs were positive, all would require treatment. Four of the cats were positive for Giardia, and the canine sample was also positive. Because of the highly contagious nature of this condition, and because the treatment can replace a standard dewormer that is given to all animals at shelter intake, we elected to treat all animals.

POPULATION TREATMENT PLAN:
Attached please find a summary of the population treatment plan for the animals from the [redacted] property (Document: [redacted]

In brief, the animals required the following infectious disease treatments in additional to routine health procedures and treatment for other individual conditions:

1) All animals: five days of once daily Panacur (fenbendazole) orally for treatment/prevention of giardia and other gastrointestinal parasites.
2) Ringworm positive animals (71/75): Three weeks of oral Sporonox (itraconazole) once daily, followed by pulse therapy of one week on/one week off until cleared (typically takes 5-10 weeks); twice weekly topical dipping with Lime Sulfur Dip until cleared; weekly toothbrush cultures.
3) Cats with URI signs: 14-28 days of once daily doxycycline orally.

The treatment/management plan for infectious disease also included strict isolation of these animals, both from another in individual cages unless part of a litter, and from the general population in each BC SPCA facility where they were housed. This required a large quantity of personal protective equipment (gowns, gloves, caps, booties) for staff and volunteers. Strict sanitation protocols using a 1:20 dilution of accelerated hydrogen peroxide (Peroxigard) were implemented.

Due to the extremely high level of infectious disease in this population and a number of animals with additional individual medical problems, the daily care of these animals (including basic cleaning and feeding, providing medication, providing for behavioural/welfare needs, recordkeeping, and communication) took 30-60 minutes per animal during the first few weeks in care. As of the date of this report, the majority of the animals are still under treatment for ringworm, are still in isolation, and their care is estimated to take 30 minutes per day per animal. These estimates do not include time spent

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performing and interpreting diagnostic test results such as weekly cultures or other administrative tasks.

All of the animals are doing well and responding to treatment, and we believe that all will eventually be cleared of URI, ringworm, and giardia.

SUMMARY/CONCLUSIONS

The extremely high level of infectious disease in this population caused these animals considerable distress. Animals were suffering from concurrent respiratory, dermatologic, and gastrointestinal disease with no (or very inadequate) treatment provided. Some of the diseases, such as Chlamydophila, Bordetella, and Ringworm are virtually never detected in clinically normal cats. Others, such as the remaining URI pathogens and Giardia, may sometimes be detected at low levels in clinically normal animals but were clearly present at excessive rates and causing clinical disease in this population.

The pathogens that cause URI, ringworm, and giardia are microscopic. A facility can appear "clean" at times but still be heavily contaminated with these pathogens. It is not possible to reach this level of infectious disease in a facility, particularly in young animals who were presumably healthy (or at least healthier) upon entry, without incredibly poor biosecurity/ husbandry/ animal management.

The rate of P3 positive ringworm cultures is the highest I have ever seen in a population of animals, and I have treated hundreds of shelter animals for ringworm over the past ten years. The overall rate of infectious disease in this population, specifically in the cats, is higher than I have ever seen in any group of cats, and I have treated thousands of cats for infectious disease including many from hoarders, cruelty/neglect cases, and overcrowded shelters. Reaching this level of infectious disease requires at least months of failure to provide adequate veterinary care and failure to provide sanitary conditions.

All of the infectious disease in this population was spreading in an uncontrolled fashion due to poor housing, stress (caused initially by not having basic welfare needs met and likely further exacerbated by being sick), and nonexistent biosecurity. The animals not already clinically ill were at greatly elevated risk of becoming clinically ill, particularly from ringworm, which was heavily contaminating the environment. Without an enormous investment in veterinary care, appropriate animal management, and biosecurity there was no chance that these animals would get better. Rather, individually and as a group, they would simply deteriorate and experience further distress.

Prepared [redacted] Emilia Gordon, DVM

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Marcie Moriarty
Chief Prevention and Enforcement Officer
BCSPCA
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Vancouver BC V5T 1R1

[redacted]

Dear Marcie,

Re: Expert opinion regarding cruelty complaint and assessment for [redacted]

Thank you for requesting my expert opinion regarding [redacted], the [redacted] year old, intact male, Bichon Frise dog, currently being housed at the [redacted] BCSPCA facility. I have reviewed the Cruelty Complaint Summary forwarded to me regarding [redacted] case, and I have also assessed [redacted] at the [redacted] BCSPCA shelter. To follow is a summary of my opinion.

Reported Incident
On [redacted] in the evening, [redacted] took his dog, [redacted], into a communal courtyard garden area on the [redacted] floor of their residence at [redacted].

[redacted] was off-leash and chased by another dog. [redacted] tried to catch [redacted], but was unsuccessful. [redacted] retuned home without [redacted] and explained the situation to his father, [redacted].

[redacted] and [redacted] returned to the courtyard to capture [redacted]. They both chased [redacted], and [redacted] was eventually able to catch [redacted].

1) [redacted] picked up [redacted] by the neck, walked towards a fountain, and from 3 meters away, forcefully threw [redacted] into the fountain. [redacted] then splashed water into [redacted] face.

2) Either [redacted] or [redacted] picked up [redacted] from the fountain and harshly threw him onto the concrete ground from 5 feet above the ground.

3) [redacted] then approached [redacted] and hit him 3-6 times on his lower back, causing a slap sound that was audible from 15-20m away. [redacted] yelped in response to being struck.

4) [redacted] or [redacted] then picked up [redacted] and roughly threw [redacted] into the fountain for a second time.

Two neighbours observed these events and called out to [redacted] and [redacted], "*what the fuck are you doing*" and "*what the hell are you doing*". [redacted] replied, "*Mind your own business.*"

Subsequent to complaints about this incident being filed with the RCMP and the BCSPCA, [redacted] and [redacted] were interviewed by the BCSPCA.

[redacted]'s interview with [redacted]:
[redacted] described that his son, [redacted] had a bad temper like all other [redacted] year old boys. He also expressed that [redacted] was angry that day and may have used force but that he did not hurt [redacted].

[redacted] observed [redacted] behave 'submissively' towards [redacted] and that [redacted] would not allow [redacted] to pick him up. She also noted what appeared to be bruising on [redacted] back, consistent with the injuries described by the witnesses.

[redacted]'s report
[redacted] admitted to striking [redacted] out of anger as [redacted] was misbehaving.

Summary of [redacted]'s Behavioural Assessment

I visited [redacted] on [redacted] at [redacted]-[redacted] am at the [redacted] BCSPCA Shelter. During the visit, I conducted a behavioural assessment on [redacted], which involved observing [redacted]'s response to strangers, familiar kennel staff, and his owners ([redacted] and his son, [redacted]).

Initial response
[redacted] was very friendly towards me, a stranger, as I approached and entered his kennel. He excitedly and voluntarily engaged in physical contact with me (approached, climbed into my lap, leant on me, attempted to lick my face), and sought physical affection without aggression.

Presentation of leash and harness by Rebecca Ledger
On the presentation of a harness and leash, [redacted]'s behaviour changed very suddenly, indicating that his emotional state had changed from very positive (excited and joyous), to extremely negative (fearful and in distress). [redacted] froze, yelped, trembled and retreated from me as I was holding the leash. He appeared to fear the leash, as well as me as I was holding the leash. [redacted] was very reluctant to walk with me as I held the leash. As soon as I passed the leash to someone else, [redacted] approached me again in a friendly way.

Presentation of leash and harness by others
This process of leashing [redacted], holding the leash and passing the leash to someone else was repeated three further times, with a member of BCSPCA kennel staff, [redacted], and [redacted].

In every case, [redacted] was initially excited to greet each individual, but then became highly fearful and distressed and reluctant to walk on each presentation of the leash. [redacted] would attempt to lean against someone other than the person holding the leash.

It was also observed that, when [redacted] fearfully backed away as [redacted] tried to leash him, that [redacted] rapidly became very frustrated with [redacted] and yelled at him harshly several times.

Interpretation of Behavioural Assessment

These observations suggest that [redacted] is innately friendly towards people, but *extremely* scared of the leash and of the person holding the leash, regardless of whether they are familiar or unfamiliar to him.

It also evident that when [redacted] does not comply with [redacted]'s commands, that [redacted] becomes frustrated quickly and threatening towards [redacted].

I asked [redacted] why [redacted] might be so intensely fearful of the leash and of the person holding it. I put it to him that dogs that have experienced pain previously in such a situation would likely anticipate pain in similar situations. [redacted] initially suggested that [redacted] had always been fearful of the leash, as it was introduced late into training. [redacted] then added that perhaps he or his mother had previously jerked [redacted] using the leash, causing him pain. Either a singular or multiple traumatic incidents of this nature could cause a dog to become highly fearful of similar circumstances when encountered again.

Summary

The incident reported to the BCSPCA, whereby [redacted] was hit and repeatedly thrown into a fountain by [redacted] and [redacted] is likely to have caused [redacted] pain, fear and distress.

[redacted] appears to have an intense, learned fear (a phobia) of the leash, likely caused by physical and emotional trauma experienced on leashed during previous incidents.

[redacted] becomes easily frustrated with [redacted]'s non-compliance with commands, and has demonstrated a pattern of inflicting emotional and physical harm to [redacted] in such situations, leading to unnecessary distress and hence, unnecessary suffering.

Please do not hesitate to contact me if you have any questions regarding this report.

With kind regards

Dr Rebecca Ledger

THE ANALYSIS OF INSECTS ASSOCIATED WITH A LIVING DOG AND ESTIMATION OF MINIMUM TIME OF INSECT COLONIZATION

SPCA File Number [redacted]

Submitted to

Ms. Eileen Drever
Senior Animal Protection Officer
Special Provincial Constable
BC SPCA Cruelty Investigations Division
1245 East 7th Avenue
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by

Gail S. Anderson, Ph.D.
Professor

Diplomate of the American Board of Forensic Entomology
Fellow, American Academy of Forensic Science
Fellow, Canadian Society of Forensic Sciences

Co-Director, Centre for Forensic Research
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[redacted]

THE ANALYSIS OF INSECTS ASSOCIATED WITH A LIVING DOG AND ESTIMATION OF MINIMUM TIME OF INSECT COLONIZATION

SPCA File Number [redacted]

RECEIPT OF INSECT EVIDENCE

I was contacted by SPCA Special Provincial Constable [redacted] at [redacted] in connection with the cutaneous myiasis of a live dog, [redacted] The dog was found outside, tied to an RV and was seized. The dog succumbed on the way to a veterinarian. The hind quarters of the animal were heavily colonized by blow fly larvae. The insect evidence was collected by Cst. [redacted] from the recently deceased dog and delivered to me at my home at [redacted] h the same day. I then transported the insects immediately to the Centre for Forensic Research at Simon Fraser University, and catalogued the evidence.

PROCEDURE

The insect evidence collected is summarized in Table 1. All the exhibits were kept in a secure manner in the Forensic Entomology Laboratory, in the Centre for Forensic Research at Simon Fraser University at room temperature. Observations and notes were made on the development of the insects from time of receipt until all had emerged or died.

The evidence is maintained in the high security evidence room in the Forensic Entomology Laboratory, in the Centre for Forensic Research at Simon Fraser University.

DEVELOPMENT OF INSECTS AND THEIR IDENTIFICATION

The development of the insects and their identification is summarized in Table 1. The skin temperature and developmental data from the insects were used to estimate elapsed time since death. Normal dog body temperature is approximately 37.7-38.8 ^{o}C, with skin temperature somewhat lower. However, the area of colonization appeared to be 'hotspots' which would have had a higher temperature. So the temperature to which the insects were exposed was probably around 38 ^{o}C. The insects collected were almost entirely *Lucilia sericata* (Meigen) with just 2 specimens of *Phormia regina* Meigen.

BACKGROUND INFORMATION

Lucilia sericata and *P. regina* are blow flies in the family Calliphoridae (Diptera). Although they are normally early arrivals to a dead body, they will also colonize necrotic tissue on live animals and are attracted to open wounds on living people and animals. Insect development is temperature dependent; that is, the normal metabolic rate is increased with increased temperature, which results in a faster rate of development, so

that the duration of development decreases in a linear manner with increasing temperature, although this becomes less linear at very high and very low temperatures (Chapman 198[redacted]).

The oldest specimens of *L. sericata* were in the 3rd instar when collected. Some exhibited crops being obscured by fat body indicating they were close to the wandering or prepuparial stage of the 3rd instar. A range of sizes of larvae ranging down to very small indicates that there were several oviposition or egg laying events. It has recently become evident that there can be developmental differences between geographically different populations of the same species so local data generated in the Metro Vancouver Region are used here. *Lucilia sericata* takes 77 h to reach the start of the 3rd instar and 145 h to reach the start of the prepuparial or wandering stage of the 3rd instar at a constant mean temperature of 23.3°C (Anderson 2[redacted]). As only 2 specimens of *P. regina* were raised, this analysis is based on *L. sericata.*

ESTIMATION OF TIME SINCE DEATH

In order to estimate the most accurate development rate at the crime scene temperatures, the data generated at other temperatures can be converted to thermal units or degree hours. Degree hour calculations are most accurate when developed from data closest to that in question (Anderson 2[redacted]).

Based on the above data, *L. sericata* requires a minimum of 1794.1 accumulated degree hours (ADH) 23.3°C x 77 h, with base 0 °C) to reach the beginning of the 3rd instar and 3378.5 ADH to reach the beginning of the prepuparial or wandering stage of the 3rd instar. These would have been accumulated by [redacted] h on [redacted] h on [redacted] respectively, indicating that the oldest insects collected were laid between or before these times, as data given are minimums.

This indicates that the dog had been colonized for at least two days and probably closer to four days before discovery. These insects colonize already necrotic tissue, indicating that the necrosis developed prior to colonization.

When blow fly larvae reach the prepuparial stage of the 3rd instar, they wander away from the food source. In a live animal, this means that older larvae may have been present and already dropped from the animal and moved away in order to pupate. The surrounding area was not searched due to the need to get the animal to a veterinarian as soon as possible. Therefore, older insects may have already left the animal, indicating a longer colonization time,

CONCLUSIONS

The insects indicate that the dog was colonized between 2-4 days before discovery at a minimum and could have been colonized prior to this. The tissue must have become necrotic prior to colonization to attract the adult females to lay the eggs, indicating that the injury or hot spots that caused the necrosis occurred sometime prior to 2-4 days before discovery. Several oviposition events occurred indicating that the animal was exposed to insects over this period of time. These times are a minimum as it is very

possible that older insects had already dropped off the dog and moved away. If you have any questions, please don't hesitate to contact me.

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Associate Director
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I reserve the right to make changes to this report as new data are recorded.

Table 1. Insect evidence collected in SPCA File Numbe[redacted]B.C.

Insectary exhibit number	Collection site	Date collected	Stage and type collected	Number collected	Number preserved	Size (mm)	Identification (and number emerged)
16-6-A	From hind region	[redacted]h	Calliphoridae larvae, mostly 2nd and 3rd instar, live	~200	~100	3.5-13	*Lucilia sericata* (139) *Phormia regina* (2)
16-6-B	From hind region	[redacted]h	Calliphoridae larvae, mostly 2nd and 3rd instar, preserved	~200	All	5-15	-

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