

MEXICAN WOLF NECROPSY PROTOCOL Am. Wildl. Soc. Vol. 12, No. 11, November

INSTITUTION/OWNER Living Desert Zoo + Gardens State Park  
ADDRESS P.O. Box 100, Carlsbad, NM. 88220.

CANID SPECIES Canis lupus baileyi ANIMAL ISIS ID # 130  
STUD BOOK # 874 SEX M  
BIRTH DATE/AGE 4/11/04/16 years WEIGHT 38.1 lbs.

REPRODUCTIVE HISTORY:  
SHOWN BEHAVIORAL ESTRUS? \_\_\_\_\_  
EVER BRED? NO  
PRODUCED PUPS? NO  
EVER HOUSED WITH OPPOSITE SEX? NO

DATE OF DEATH 3/10/15 DATE OF NECROPSY 3/10/15

HISTORY: (Briefly summarize clinical signs, circumstances of death.)

- 2/26/15 #130 Showing signs of lethargy, holding head + tail down and diarrhea. Fecal negative. Rx Metronidazole + Pred. Also showing weight loss.
- 3/3/15 Holding head up, stool more firm. Readily eating quail w/ medicines w/in.
- 3/8/15 Not doing well. Condition worsening. Not eating quail w/ meds. Very thin. Arched lumbar area. Rear leg ataxia, swaying, knuckling over, stumbling, falling over. Weak, severe muscle atrophy + weight loss. Temperature 100°F. Pulse + resp WNL. Odiferous, orangish diarrhea. (A) Poor prognosis. Rx 12mg Dexamethasone I.M.
- 3/10/15 Condition worsening. Animal down, no attempt to rise. Euthanasia indicated and performed. (Mg. 20)

2/26/15 Except for ↓ Cu, T.P., Alb, Glob and 71 Neuts + Grans other blood values WNL. Please have your pathologist perform a histopathology on the tissues. Then send the gross examination worksheets and pathologist's report to Dr. Linda Munson, Mexican Wolf/SSP® Pathology Advisor; Department VM-PMI, Haring Hall; School of Veterinary Medicine; University of California; Davis, CA 95616; PH: 530-754-7963; Fax: 530-752-

3349. Copies of the completed necropsy reports should be faxed to the SSP<sup>®</sup> Coordinator Peter Siminski, The Living Desert, 47-900 Portola Avenue; Palm De Figure 8-G cont.  
PH: 760-346-5694, ext. 2103; FX: 760-568-9685; Email: psiminsk

Animal ISIS ID# 130

### GROSS EXAMINATION WORKSHEET

PROSECTOR: Mark L. Heinrich DVM

GENERAL CONDITION: (Nutritional condition, physical condition)

NEONATES: Examine for malformations (cleft palate, deformed limbs, etc.)

*Severe weight loss and generalized muscle atrophy, slight dehydration*

SKIN: (Including pinna, feet)

*WNL. Slight skin tenting = dehydration*

MUSCULOSKELETAL SYSTEM: (Bones, joints, muscles)

*Bones + joints WNL. Generalized significant muscle atrophy*

BODY CAVITIES: (Fat stores, abnormal fluids)

NEONATES: Assess hydration (tissue moistness)

*"No" fat stores. Viscera appears normal.*

HEMOLYMPHATIC: (Spleen, lymph nodes, thymus)

*Spleen appears normal in color and consistency but small, ~ 1/4 normal size. LNs appear mildly active with a yellow/orange tinge in coloration.*

RESPIRATORY SYSTEM: (Nasal cavity, larynx, trachea, lungs, regional lymph nodes)

*WNL*

NEONATES: Determine if breathing occurred (Do the lungs float in formalin?)

CARDIOVASCULAR SYSTEM: (Heart, pericardium, great vessels)

*Appears Normal.*

DIGESTIVE SYSTEM: (Mouth, teeth, esophagus, stomach, intestines, liver, pancreas, mesenteric lymph nodes)

NEONATES: Is milk present in stomach? *Mouth, teeth, esoph. appear normal, Stomach - thickened mucosa. Intestinal mucosa thickened throughout. From jejunum to colon mucosa not only thickened by also hemorrhagic.*

URINARY SYSTEM: (Kidneys, ureters, urinary bladder, urethra)

*Kidneys perhaps "mildly swollen"; Rest of urinary system appears to be normal.*

REPRODUCTIVE SYSTEM: (Testis/ovary, uterus, vagina, penis, prepuce, prostate, mammary glands, placenta)

*WNL.*

ENDOCRINE SYSTEM: (Adrenals, thyroid, parathyroids, pituitary)

*Appear Normal*

NERVOUS SYSTEM: (Brain, spinal cord, peripheral nerves)

*Appears normal. Collected cervical, thoracic & lumbar spinal cord since ataxia was noted.*

SENSORY ORGANS: (Eyes, ears)

*WNL. typical old age changes i.e. cataracts.*

PRELIMINARY DIAGNOSES:

*Gastrointestinal disorder + possible neurological or neuromuscular disorder.*

Figure 8-G cont.

LABORATORY STUDIES: (List bacterial and viral cultures submitted and results, if available.)

### FIXED TISSUE CHECK LIST

Preserve the following tissues in 10% buffered formalin at a ratio of 1 part tissue to 10 parts formalin. Tissues should be no thicker than 1 cm. **INCLUDE SECTIONS OF ALL LESIONS AND SAMPLES OF ALL LISTED TISSUES.** For NEONATES, see the additional tissues on the NEONATAL PROTOCOL. Information on specific TISSUE SECTIONING PROCEDURES are on the following pages.

**TISSUES TO SAMPLE (ALL TISSUES CAN BE PUT IN ONE CONTAINER):** 3 containers

- ✓ Heart
- ✓ Trachea
- ✓ Thyroid/parathyroid glands
- ✓ Lungs
- Thymus
- ✓ Lymph nodes
- ✓ Spleen
- ✓ Liver
- ✓ Stomach
- ✓ Small intestines
- ✓ Pancreas
- ✓ Large intestines
- ✓ Adrenal
- ✓ Kidneys
- ✓ Urinary bladder
- ✓ Testis/Ovary
- ✓ Uterus
- ✓ Brain
- ✓ Skin
- ✓ Skeletal muscle
- ✓ Bone marrow
- Long bone (if bone disease)
- ✓ Spinal cord (if neurological disease)

**FROZEN TISSUE:** Store in plastic bags at -70 or -20 C for toxicology: Liver, brain, kidney, and (if possible) antemortem serum and plasma frozen. If you suspect an infectious disease, also freeze samples of small intestines, lung, spleen, and lymph nodes.

NEONATAL NECROPSY PROTOCOL

Please follow the adult protocol in addition to the following:

1. Fix umbilical stump and surrounding tissues.
2. Examine for malformations (cleft palate, deformed limbs, heart defects).
3. Assess hydration (tissue moistness) and evidence of nursing (milk in stomach).
4. Determine if breathing occurred. (Do the lungs float in formalin?)
5. Check foot pads for erosions and ulcers.

Additional tissues for histopathology from neonates:

- All tissues from the adult necropsy check list
- Umbilicus (including external and internal vessels and surrounding skin)
- Foot pads from all feet.
- Extra sections of lung.

RECOMMENDED TISSUE SAMPLING PROCEDURES

- ✓ Adrenal glands: Entire gland with transverse incision.
- ✓ Brain: Cut longitudinally along the midline. Submit entire brain and pituitary gland except for frozen sections.
- ✓ Eye: Both eyes intact. Remove extraocular muscles and periorbital tissues.
- ✓ Gastrointestinal tract: Open carefully along the long axis.
  - ✓ Esophagus - 3 cm long section
  - ✓ Stomach - multiple sections from cardia, fundus (body), and atrium of pylorus.
  - ✓ Small intestines - duodenum, jejunum, ileum
  - ✓ Large intestines - cecum, colon
  - ✓ Omentum - 3 cm square
- ✓ Heart: longitudinal section including atrium, ventricle, and valves from (both) right and left heart. (Include large vessels.)
- ✓ Kidney: Cortex and medulla from each kidney.
- ✓ Liver: Sections from 3 lobes with capsule and gall bladder.
- ✓ Lungs: Sections from several lobes including a major bronchus.
- ✓ Lymph nodes: Cervical, mediastinal, bronchial, mesenteric, and lumbar cut transversely.
- ✓ Opened rib or longitudinally sectioned half femur: Marrow must be exposed for proper fixation.
- ✓ Oral/pharyngeal mucosa and tonsil: Plus any areas with erosions, ulcerations, or proliferative lesions.
- ✓ Pancreas: Representative sections from two areas including central ducts.
- ✓ Pituitary glands: Entire gland.

✓ Reproductive tract: Ovaries and entire uterus with longitudinal cut into lumens of uterine horns. Both testes (transversely cut) with epididymis. Entire prostate, transversely cut.

→ longitudinal, 1/2 testis, + Epididymis went to Dr. Dalenas requested.

✓ Salivary gland:

✓ Sciatic nerve: 3 cm section.

✓ Skeletal muscle: Cross section of thigh muscle.

✓ Skin: Full thickness of abdominal skin, lip, and ear pinna.

✓ Spinal Cord: If neurological disease, sections from cervical, thoracic, and lumbar cord.

(collected as animal was ataxic → neurological?)

✓ Spleen: Cross sections including capsule.

Thymus:

✓ Thyroid/parathyroids: Leave glands intact.

✓ Tongue: Cross section near tip including both mucosal surfaces.

✓ Trachea: Intra Thoracic

✓ Urinary bladder/ureters/urethra: Cross section of bladder and 2 cm sections of tubular structures.

#### SHIPPING TISSUES:

After at least 72 hrs in fixative, ship tissues in a leak-proof container in adequate formalin to keep tissues moist. Tissues can be shipped by U.S. Mail or UPS to:

~~Dr. Linda Munson  
Mexican Wolf SSP® Pathology Advisor  
Department VM-PMI, Haring Hall  
School of Veterinary Medicine  
University of California  
Davis, CA 95616~~