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Images of Emerging and Exotic Diseases of Animals

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Images of Emerging and Exotic Diseases of Animals

Abstract
The chapter contains annotated color images of emerging diseases and exotic diseases in wild and domesticated animals.

Keywords
zoonoses, infectious diseases, parasitology, animal diseases

Disciplines
Large or Food Animal and Equine Medicine | Small or Companion Animal Medicine | Veterinary Infectious Diseases | Veterinary Pathology and Pathobiology

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Section 3
• Images of Emerging and Exotic Diseases of Animals •

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African Horse Sickness 247
African Swine Fever 248
Akabane 251
Anthrax 252
Avian Influenza, Highly Pathogenic 252
Bluetongue 253
Botulism 256
Bovine Spongiform Encephalopathy 256
Bovine Tuberculosis 256
Brucellosis 257
Chlamydiosis (Avian) 258
Classical Swine Fever 258
Contagious Bovine Pleuropneumonia 260
Contagious Equine Metritis 262
Foot and Mouth Disease 262
Heartwater 265
Hemorrhagic Septicemia 268
Hendra 269
Influenza 269

Listed below are additional institutions:

Armed Forces Institute of Pathology (AFIP),
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Elizabeth Macarthur Agricultural Institute (EMAI), NSW, Australia
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University of Melbourne, Australia

Japanese Encephalitis 269
Leishmaniasis 269
Lumpy Skin Disease 270
Malignant Catarrhal Fever 272
Melioidosis 275
Monkeypox 275
Newcastle Disease 275
Rabbit Hemorrhagic Disease 278
Rift Valley Fever 279
Rinderpest 280
Screwworm Myiasis 282
Sheep Pox and Goat Pox 283
Swine Vesicular Disease 286
Theileriosis - Theileria parva and
Theileria annulata 287
Transmissible Spongiform Encephalopathies 289
Trypanosomiasis 289
Vesicular Stomatitis 289
African Horse Sickness
Horse. Abundant froth draining from the nostrils reflects severe pulmonary edema.
Source: PIADC

African Horse Sickness
Horse, peritoneal cavity. There is excessive straw-colored fluid (hydroperitoneum).
Source: PIADC

African Horse Sickness
Horse, heart. There are many subendocardial hemorrhages.
Source: PIADC

African Horse Sickness
Horse, heart. The lung exhibits severe interlobular edema. There are petechiae on the pulmonary pleura and the splenic capsule.
Source: PIADC

African Horse Sickness
Horse, peritoneal cavity. There is excessive straw-colored fluid (hydroperitoneum).
Source: PIADC

African Horse Sickness
Horse, heart. The pericardial sac contains excessive, slightly turbid straw-colored fluid (hydropericardium).
Source: PIADC

African Horse Sickness
Horse, skeletal muscle. There is marked intermuscular edema.
Source: Noah's Arkive, PIADC
African Horse Sickness
Horse, cecum. There are serosal petechiae on the apex of the cecum.
Source: Noah's Arkive, PIADC

African Swine Fever
Pig. There is bloody, mucoid, foamy nasal discharge.
Source: PIADC

African Swine Fever
Pig, limbs. There is marked hyperemia of the distal limbs.
Source: PIADC

African Swine Fever
Pig, perineal skin. There is a large sharply demarcated zone of hyperemia.
Source: PIADC

African Swine Fever
Pig. There are multiple sharply demarcated foci of cutaneous hemorrhage and/or necrosis; hemorrhagic lesions may contain dark red (necrotic) centers.
Source: PIADC

African Swine Fever
Pig. There are multiple sharply demarcated foci of cutaneous hemorrhage and/or necrosis; hemorrhagic lesions may contain dark red (necrotic) centers.
Source: PIADC
African Swine Fever
Pig, skin. Necrotic exudate is sloughing from the lesion on the left. There is a rim of hyperemia around the focus of hemorrhage and necrosis (infarct) on the right.
Source: PIADC

African Swine Fever
Pig, kidney. There is moderate perirenal (retroperitoneal) edema.
Source: PIADC

African Swine Fever
Pig, kidney. Petechiae are disseminated throughout the cortex, and there are larger coalescing pelvic hemorrhages.
Source: PIADC

African Swine Fever
Pig, kidney. Close-up of cortical petechiae.
Source: PIADC

African Swine Fever
Pig, kidney. There is severe disseminated cortical petechiation; the pale foci are infarcts.
Source: PIADC

249 Images of Diseases
African Swine Fever
Pig, urinary bladder. There are disseminated mucosal petechiae.
Source: PIADC

African Swine Fever
Pig, heart. There is abundant straw-colored pericardial fluid (hydropericardium), and multifocal epicardial hemorrhage.
Source: PIADC

African Swine Fever
Pig, heart. There is "paintbrush" hemorrhage on the serosa.
Source: PIADC

African Swine Fever
Pig, stomach. There is "paintbrush" hemorrhage on the serosa.
Source: PIADC

African Swine Fever
Pig, heart. Subendocardial hemorrhage.
Source: PIADC

African Swine Fever
Pig, lung. The lung is noncollapsed and edematous; there is dorsal hemorrhage and ventral tan consolidation.
Source: PIADC

African Swine Fever
Pig, mandibular lymph node. There is moderate peripheral (medullary) hemorrhage.
Source: PIADC
African Swine Fever
Pig, stomach. The hepatogastric lymph node is markedly enlarged and hemorrhagic, and the adjacent lesser omentum is edematous.
Source: PIADC

African Swine Fever
Pig, spiral colon. The colon is distended with bloody contents (due to a hemorrhagic gastric ulcer).
Source: PIADC

African Swine Fever
Pig, cecum. Mucosa is markedly edematous and hyperemic, and lymph nodes are hemorrhagic.
Source: PIADC

Akabane
Bovine neonate. This live calf cannot stand due to severe arthrogryposis, primarily affecting the hindlimbs.
Source: Dr. P. Mansell, University of Melbourne

Akabane
Bovine neonate (Aino). This stillborn calf exhibits torticollis and arthrogryposis.
Source: Dr. K. Kawashima, National Institute of Animal Health, Japan
**Akabane**

Bovine neonate, brain. The entire brain is reduced in size (microencephaly), and surrounded by cerebrospinal fluid.

*Source: Dr. K. Kawashima, National Institute for Animal Health, Japan*

**Anthrax**

Bovine, lymph node. The node is hyperemic and contains multiple dark foci of hemorrhage.

*Source: AFIP*

**Avian Influenza**

Chicken, head. The comb and wattles are congested and markedly edematous.

*Source: Dr. D. Swayne, USDA*

**Anthrax**

Human, skin. Lesions are raised and have necrotic centers.

*Source: AFIP*

**Anthrax**

Bacillus anthracis is a large, blunt- to square-ended bacterial rod that forms short chains.

*Source: ISU CVM*

**Avian Influenza**

Chicken, shanks. The shanks are swollen (edema) and extensively reddened (hemorrhage).

*Source: Dr. D. Swayne, USDA*
Avian Influenza
Chicken, heart. There are numerous epicardial petechiae.
Source: Dr. D. Swayne, USDA

Avian Influenza
Chicken, proventriculus. There are multiple hemorrhages on the mucosal surface of the proventriculus.
Source: Dr. D. Swayne, USDA

Avian Influenza
Chicken, lung. The lung is diffusely reddened, wet, and swollen (congestion and edema).
Source: Dr. D. Swayne, USDA

Avian Influenza
Chicken, intestine. There are serosal hemorrhages over the Peyer’s patches.
Source: Dr. D. Swayne, USDA

Bluetongue
Sheep. There is bilateral nasal exudate, erosion of the nasal planum, and excessive salivation.
Source: PIADC

Bluetongue
Sheep, mouth. There is linear erosion and reddening of the right buccal mucosa.
Source: PIADC
Bluetongue
Sheep. There are multiple erosions and crusts on the muzzle and lips.
Source: PIADC

Bluetongue
Sheep, mouth. Most of the dental pad is eroded; the remaining pale mucosa is necrotic.
Source: AFIP

Bluetongue
Bovine. The muzzle is covered by an adherent crust, and the underlying (eroded) tissue is hyperemic.
Source: PIADC

Bluetongue
Bovine, mammary gland. There is extensive coalescing ulceration of the teat skin.
Source: PIADC

Bluetongue
Sheep, pulmonary artery. There are multiple ecchymoses on the intimal surface.
Source: AFIP

Bluetongue
Sheep, foot. There are multiple petechiae in the hoof wall, and there is marked hyperemia of the coronary band.
Source: AFIP
Bluetongue
Sheep, tongue. The lateral mucosa contains several ulcers that are covered by exudate and surrounded by zones of hyperemia.
Source: PIADC

Bluetongue
Sheep, eye. There are foci of bulbar and palpebral conjunctival hemorrhage.
Source: AFIP

Bluetongue
Sheep, rumen. There are multiple mucosal hemorrhages centered on the pillars.
Source: AFIP

Bluetongue
Sheep, skeletal muscle. There is a focus of hemorrhage on the tendons. Pale areas are consistent with myodegeneration.
Source: AFIP

Bluetongue
Sheep, tongue. There are disseminated mucosal petechiae, and a single large vesicle on the tip.
Source: AFIP

Bluetongue
Sheep, fetuses. The larger of these aborted macerated fetuses exhibits torticollis.
Source: PIADC

255 Images of Diseases
Botulism
Mink. Flaccid paralysis characteristic of botulism.
Source: AFIP

Botulism
Duck. Flaccid paralysis characteristic of botulism.
Source: AFIP

Bovine Spongiform Encephalopathy
Brain. The red box indicates the region of the obex, the portion of the brainstem that is required for BSE diagnosis.
Source: Dr. S. Sorden, ISU CVM, VPTH

Bovine Tuberculosis
Elk, lung and lymph node. Lung contains multiple coalescing foci of caseous necrosis surrounded by thin pale fibrous tissue capsules (tubercles).
Source: Dr. G. Wobeser, CCWHC

Bovine Tuberculosis
Bovine, lung. Lung parenchyma is almost entirely replaced by variably-sized, coalescing, raised pale nodules.
Source: AFIP

Bovine Tuberculosis
Pig, tracheobronchial lymph nodes. The center of the sectioned node is replaced by caseous, mineralized debris.
Source: AFIP
Bovine Tuberculosis
Bovine, uterus. The endometrium contains numerous raised tubercles.
Source: AFIP

Bovine Tuberculosis
Pig, liver. Pale, slightly raised granulomas are disseminated throughout all liver lobes.
Source: AFIP

Bovine Tuberculosis
Pig, lymph nodes. Pale, mineralized granulomas are scattered throughout these cervical lymph nodes.
Source: AFIP

Brucellosis
Bovine, placenta. Numerous pale clumps of exudate are scattered over the cotyledon and adjacent chorion.
Source: AFIP

Brucellosis
Caribou, carpus, B. suis biovar 4. The carpal bursa is markedly swollen and fluctuant.
Source: Dr. G. Wobeser, CCWHC

Images of Diseases
**Brucellosis**
Caribou, carpus, *B. suis* biovar 4. The carpal bursa contains purulent exudate.
Source: Dr. G. Wobeser, CCWHC

**Chlamydiosis (Avian)**
Avian, liver. Sheets of fibrinous exudate partially cover the capsular surface of the liver.
Source: AFIP

**Classical Swine Fever**
Pig. The distal pinnae contain coalescing dark red foci of hemorrhage and necrosis (infarction).
Source: USDA

**Classical Swine Fever**
Pig, kidney. There are numerous disseminated cortical petechiae (“turkey egg kidney”).
Source: PIADC

**Classical Swine Fever**
Pig, kidney. The cortex contains multiple petechiae and pale infarcts surrounded by hemorrhage.
Source: PIADC

**Classical Swine Fever**
Pig, kidney. The cortex contains disseminated petechiae. Calyces are moderately dilated (hydronephrosis) and also contain hemorrhages.
Source: PIADC
Classical Swine Fever
Pig, retropharyngeal lymph node. The lymph node is markedly enlarged and hemorrhagic; the tonsil contains multiple poorly demarcated hemorrhages.
Source: PIADC

Classical Swine Fever
Pig, inguinal lymph node. There are petechial and peripheral (medullary sinus) hemorrhages.
Source: PIADC

Classical Swine Fever
Pig, lungs. There are numerous disseminated pleural petechiae, and there is mild interlobular edema.
Source: PIADC

Classical Swine Fever
Pig, colon. The mucosa is reddened and contains multiple discrete ("button") ulcers surrounded by zones of hemorrhage.
Source: Dr. R. Panciera, Noah's Arkive, Oklahoma State University

Classical Swine Fever
Pig, pharynx and larynx. There are coalescing foci of petechial hemorrhage (and necrosis) in the palatine tonsils and adjacent pharyngeal and laryngeal mucosa.
Source: Dr. W. Wajwalku, Kasetsart University, Thailand

Classical Swine Fever
Pig, spleen. There are multiple coalescing, swollen dark red infarcts along the margins.
Source: Dr. D. Gregg, Noah's Arkive, PIADC
Contagious Bovine Pleuropneumonia
Bovine, carpus. There is abundant fibrin within the synovial space and on the synovium, and articular cartilages contain a few small erosions.
Source: PIADC

Contagious Equine Metritis
Horse, vagina. There is straw-colored fluid within the cranial vagina.
Source: PIADC

Contagious Equine Metritis
Horse, vulva. Mucopurulent exudate drains from the vulva.
Source: PIADC

Contagious Equine Metritis
Horse, uterus. The uterine horns and body are mildly distended (with mucopurulent exudate).
Source: PIADC

Contagious Equine Metritis
Horse, uterus. The uterine body contains mucopurulent exudate.
Source: PIADC

Foot and Mouth Disease
Bovine, gingiva. There is an elongate erosion (ruptured vesicle) ventral to the incisors.
Source: PIADC
Foot and Mouth Disease
Goat, oral mucosa. There is a large erosion (ruptured vesicle) on the rostral mandibular buccal mucosa.
Source: PIADC

Foot and Mouth Disease
Pig, foot. There is a ruptured vesicle on the caudal-lateral coronary band, with undermining of the heel.
Source: PIADC

Foot and Mouth Disease
Pig, foot. There is an intact vesicle on the caudal coronary band of the left claw, and a cleft (ruptured vesicle) on the heel bulb of the right claw.
Source: PIADC

Foot and Mouth Disease
Bovine, muzzle. Within the naris, the ventromedial mucosa contains an intact vesicle.
Source: PIADC
Foot and Mouth Disease
Bovine, lip. The buccal mucosa contains an erosion (ruptured vesicle).
Source: PIADC

Foot and Mouth Disease
Bovine, tongue. A large area of undermined epithelium (bulla) is centrally eroded; this lesion probably resulted from coalescence of several smaller lesions.
Source: Dr. D. Gregg, Noah's Arkive, PIADC

Foot and Mouth Disease
Bovine, tongue. There are multiple large mucosal erosions and ulcers.
Source: PIADC

Foot and Mouth Disease
Pig, foot. Large clefts at the coronary bands precede sloughing of the claws.
Source: Dr. D. Gregg, Noah's Arkive, PIADC

Foot and Mouth Disease
Pig, tongue. Many ("dry") vesicles are ruptured and lack fluid.
Source: Foreign Animal Diseases "The Grey Book" USAHA
Foot and Mouth Disease
Rumen mucosa, higher magnification. There are several irregularly shaped erosions (ruptured vesicles) on the pillar.
Source: PIADC

Foot and Mouth Disease
Rumen mucosa, dorsal sac, low magnification. There are several erosions (ruptured vesicles) on the pillars. The pale margins are undermined epithelium.
Source: PIADC

Foot and Mouth Disease
Bovine, teat. There is a ruptured vesicle on the end of the teat.
Source: PIADC

Heartwater
*Amblyomma variegatum* ticks feeding on a goat.
Source: PIADC

Foot and Mouth Disease
Sheep, heart. There is a pale area of myocardial necrosis visible from the epicardial surface.
Source: Dr. D. Gregg, Noah's Arkive, PIADC

265 Images of Diseases
Heartwater
Goat. The neck is extended, consistent with dyspnea.
Source: PIADC

Heartwater
Goat, thoracic viscera. There are many pleural hemorrhages, and the lung is moderately noncollapsed (edema).
Source: PIADC

Heartwater
Sheep, lung. There is severe interlobular edema.
Source: PIADC

Heartwater
Sheep, lung. Interlobular septa are distended with edema fluid.
Source: PIADC

Heartwater
Sheep, lung. The lung is noncollapsed and hyperemic, and the bronchi contain frothy fluid (pulmonary edema).
Source: PIADC

Heartwater
Goat, heart. There are many small hemorrhages on the endocardial surface.
Source: PIADC
Heartwater
Sheep, kidney. There are multiple petechiae on the cortical surface.
Source: PIADC

Heartwater
Goat, precapsular lymph node. There are multiple barely discernable petechiae in the cortex.
Source: PIADC

Heartwater
Small ruminant, abomasum. The mucosa contains disseminated petechial and coalescing ecchymotic hemorrhages.
Source: PIADC

Heartwater
Sheep, kidney. Section reveals numerous fine linear radial hemorrhages; hemorrhages coalesce in the papillae.
Source: PIADC

Heartwater
Goat, abomasum. There are multiple petechial and paintbrush serosal hemorrhages.
Source: PIADC

Heartwater
Small ruminant, small intestine. The mucosa contains numerous petechiae and ecchymoses.
Source: PIADC
Heartwater
Sheep, brain. The leptomeninges are congested and contain many small hemorrhages. Gyri are flattened (cerebral edema).
Source: PIADC

Heartwater
Goat, brain. The cerebrum contains multiple petechiae and a few ecchymoses. The swollen, hemorrhagic choroid plexus protrudes from the lateral ventricle.
Source: PIADC

Heartwater
Goat, brain smear. An endothelial cell contains a morula (cluster) of *Ehrlichia ruminantium*.
Source: PIADC

Heartwater
Goat, peripheral blood smear. A neutrophil contains a few *Ehrlichia ruminantium*.
Source: PIADC

Heartwater
Goat,uffy coat smear. Several neutrophils contain *E. ruminantium* morulae.
Source: PIADC

Hemorrhagic Septicemia
Bovine, head and neck. Marked subcutaneous edema.
Source: PIADC
Hemorrhagic Septicemia
Bovine, heart. There are numerous often coalescing petechiae on the epicardium.
Source: PIADC

Hemorrhagic Septicemia
Bovine, submandibular region. There is severe subcutaneous/fascial edema and multifocal hemorrhage. The parotid gland exhibits interlobular edema.
Source: PIADC

Hendra
Horse, lung. There is severe interlobular edema.
Source: Dr. M. Williamson, CSIRO, Australia

Influenza
Pig, lungs. There is diffuse tan consolidation of cranial lobes, and multifocal lobular consolidation of the caudal lobes.
Source: Dr. B. Janke, ISU CVM, VDL

Japanese Encephalitis
Pig, fetuses. The litter consists of five large (full-term) still-born fetuses and two small mummified fetuses.
Source: Dr. K. Kawashima, Central Livestock Hygiene Service Center Saitama pref., Japan

Leishmaniasis
Dog, bone marrow. The bone marrow contains hematopoietic precursors and macrophages with numerous intracytoplasmic Leishmania sp.
Source: Dr. C. Andreasen, ISU CVM, VPTH
**Leishmaniasis**
Dog, bone marrow. Higher magnification of bone marrow demonstrating intracellular and extracellular *Leishmania* sp.
Source: Dr. C. Andreasen, ISU CVM, VPTh

**Lumpy Skin Disease**
Bovine, skin. There are disseminated cutaneous papules.
Source: Noah's Arkive, PIADC

**Lumpy Skin Disease**
Bovine, skin. There are disseminated cutaneous papules with necrotic centers (sitfasts).
Source: Noah's Arkive, PIADC

**Lumpy Skin Disease**
Bovine, skin. Necrotic centers (sitfasts) of two of these papules have sloughed.
Source: Noah's Arkive, PIADC

**Lumpy Skin Disease**
Bovine, skin. There is hemorrhagic exudate subjacent to the necrotic center (sitfast) of a papule.
Source: Noah's Arkive, PIADC
Lumpy Skin Disease
Bovine, skin. Multiple subcutaneous nodules elevate the skin.
Source: PIADC

Lumpy Skin Disease
Bovine, muzzle. There are multiple sharply-demarcated slightly raised papules, often with eroded surfaces, that extend into the nares.
Source: Noah’s Arkive, PIADC

Lumpy Skin Disease
Bovine, nasal turbinate. Early pox lesions are slightly pale round foci rimmed by petechiae.
Source: PIADC

Lumpy Skin Disease
Bovine, nasal turbinate. The centers of well-developed pox are necrotic.
Source: PIADC

Lumpy Skin Disease
Bovine, nasal turbinate. Nasal mucosa contains several macules with hyperemic margins.
Source: Noah’s Arkive, PIADC

Lumpy Skin Disease
Bovine, trachea. The mucosa contains a poorly demarcated round focus rimmed by mild hemorrhage (early pox lesion).
Source: PIADC
Lumpy Skin Disease
Bovine, trachea. Two coalescing mucosal macules have hyperemic margins.
Source: Noah's Arkive, PIADC

Malignant Catarrhal Fever
Bovine, muzzle. Multiple shallow erosions are filled with dried nasal exudate.
Source: PIADC

Malignant Catarrhal Fever
Bovine, muzzle. There is marked generalized interlobular edema, and there is a small cluster of red nodules on the left side of the specimen.
Source: Noah's Arkive, PIADC

Malignant Catarrhal Fever
Bovine, oral mucosa. There is gingival hyperemia and focal erosion.
Source: PIADC
Malignant Catarrhal Fever
Bovine, hard palate. There are multiple coalescing mucosal erosions.
Source: PIADC

Malignant Catarrhal Fever
Bovine, head, sagittal section. Mucoid exudate multifocally covers the nasal and pharyngeal mucosa.
Source: PIADC

Malignant Catarrhal Fever
Bovine, prescapular lymph nodes: Moderately (left) to markedly enlarged (right) due to MCF.
Source: PIADC

Malignant Catarrhal Fever
Bovine, skin. There are numerous raised plaques (multifocal dermatitis).
Source: PIADC

Malignant Catarrhal Fever
Bovine, nasal turbinate. There is a small amount of mucoid exudate.
Source: PIADC

Malignant Catarrhal Fever
Bovine, prescapular lymph node. There are foci of hemorrhage (and necrosis) in the cortex, and the medulla is edematous.
Source: PIADC
Malignant Catarrhal Fever
Bovine, prescapular lymph node. There are foci of hemorrhage (and necrosis) in the cortex, and the medulla is edematous.
Source: PIADC

Malignant Catarrhal Fever
Bovine, cecum and ileum. There are scattered small foci of mucosal hemorrhage and erosion.
Source: PIADC

Malignant Catarrhal Fever
Bovine, colon. There is severe longitudinal linear congestion of the mucosa.
Source: PIADC

Malignant Catarrhal Fever
Bovine, omasum. Omasal leaves contain multiple pale foci of necrosis; on the right there are several ulcers.
Source: PIADC

Malignant Catarrhal Fever
Bovine, spiral colon. There are multiple mucosal hemorrhages.
Source: PIADC

Malignant Catarrhal Fever
Bovine, kidney. Multiple pale foci in the cortex are foci of interstitial nephritis.
Source: PIADC
Malignant Catarrhal Fever
Bovine, urinary bladder. The mucosal surface contains several small erosions and one large hemorrhagic ulcer.
Source: PIADC

Monkeypox
Rhesus macaque, monkeypox. There are multiple hemorrhagic papules on the forehead and eyelids.
Source: AFIP

Newcastle Disease
Chicken, comb. The comb is markedly edematous and contains multiple foci of hemorrhage.
Source: PIADC

Melioidosis
Goat, nasal turbinates. There are multiple raised pale nodules (abscesses) on the nasal mucosa.
Source: Dr. K. Kawashima, National Institute of Animal Health, Japan

Monkeypox
Primate, hindlimb, monkeypox. There are numerous discrete papules with red, depressed centers.
Source: AFIP

Newcastle Disease
Chicken. There is a marked hemorrhage of the comb, wattle, and adjacent skin.
Source: AFIP

275 Images of Diseases
Newcastle Disease
Chicken. There is marked hemorrhage of the comb and head, with cyanosis of the margin of the comb.
Source: CAHFSLS

Newcastle Disease
Chicken, eye. Conjunctival hemorrhage is most severe in the nictitans.
Source: CAHFSLS

Newcastle Disease
Chicken, oral cavity. Numerous clumps of fibrinonecrotic exudate adhere to foci of necrosis in the oral, pharyngeal, and esophageal mucosa.
Source: CAHFSLS

Newcastle Disease
Chicken, trachea. Tracheal and laryngeal mucosa contain many foci of hemorrhage and small clumps of fibrinonecrotic exudate.
Source: CAHFSLS

Newcastle Disease
Chicken, ceca. Hyperemic, necrotic cecal tonsils are visible from the serosal surface.
Source: CAHFSLS
Newcastle Disease
Chicken, ceca. The cecal tonsil is red-brown, thickened, and friable (necrotic).
Source: CAHFSLS

Newcastle Disease
Chicken, cloaca. The mucosa is hyperemic and contains foci of hemorrhage.
Source: CAHFSLS

Newcastle Disease
Chicken, proventriculus. The proximal mucosa is eroded and covered by a fibrinonecrotic (diptheritic) membrane.
Source: CAHFSLS

Newcastle Disease
Chicken, rectum. There are multiple linear mucosal hemorrhages.
Source: CAHFSLS

Newcastle Disease
Chicken, colon. The mucosa contains multiple sharply demarcated foci of hemorrhage and necrosis.
Source: CAHFSLS

Newcastle Disease
Chicken, cecal tonsil necrosis.
Source: CAHFSLS

Images of Diseases
Newcastle Disease
Chicken, larynx. Diphtheritic laryngo-tracheitis.
Source: CAHFSLS

Rabbit Hemorrhagic Disease
Rabbit, liver. All liver lobes are swollen, pale and have a reticular pattern.
Source: Dr. J.P. Teifke, Federal Research Institute for Animal Health Riems, Germany

Rabbit Hemorrhagic Disease
Rabbit, lungs. The trachea is filled with foam, and the lungs are mottled and noncollapsed (severe pulmonary edema).
Source: Dr. J.P. Teifke, Federal Research Institute for Animal Health Riems, Germany

Rabbit Hemorrhagic Disease
Rabbit, heart. There are multiple epicardial hemorrhages.
Source: Dr. J.P. Teifke, Federal Research Institute for Animal Health Riems, Germany

Rabbit Hemorrhagic Disease
Rabbit, heart. There is a large area of pallor (necrosis) with a prominent reticular pattern.
Source: Dr. J.P. Teifke, Federal Research Institute for Animal Health Riems, Germany
Rabbit Hemorrhagic Disease
Rabbit, spleen. The spleen is markedly enlarged and congested.
Source: Dr. J.P. Teifke, Federal Research Institute for Animal Health Riems, Germany

Rabbit Hemorrhagic Disease
Rabbit, kidney. There are petechiae throughout the cortex, and the medulla is severely congested.
Source: Dr. J.P. Teifke, Federal Research Institute for Animal Health Riems, Germany

Rabbit Hemorrhagic Disease
Rabbit. This chronically affected liver contains pale areas of postnecrotic scarring.
Source: Dr. J.P. Teifke, Federal Research Institute for Animal Health Riems, Germany

Rift Valley Fever
Bovine, fetus. The skin of this emphysematous fetus is stained with meconium.
Source: PIADC

Rift Valley Fever
Sheep, fetus, kidney. There is severe perirenal edema.
Source: PIADC
Rift Valley Fever
Sheep, heart. The ventricular endocardium contains many hemorrhages.
Source: PIADC

Rift Valley Fever
Sheep, liver. The cut surface of this swollen liver is pale and contains many petechiae.
Source: PIADC

Rift Valley Fever
Sheep, colon. Severe hemorrhagic colitis.
Source: PIADC

Rift Valley Fever
Sheep, colon. There is severe locally extensive mucosal hemorrhage.
Source: PIADC

Rinderpest
Bovine, oral mucosa. There are numerous small gingival erosions.
Source: PIADC

Rinderpest
Bovine, oral mucosa. There are numerous coalescing erosions on the ventrolateral lingual mucosa.
Source: PIADC
Rinderpest
Bovine, oral mucosa. There is severe diffuse necrosis/coalescing ulceration of the dental pad; mandibular mucosa contains smaller erosions.
Source: PIADC

Rinderpest
Bovine, gingiva. There are a few small erosions.
Source: PIADC

Rinderpest
Bovine, hard palate. There are numerous erosions on and between the buccal papillae.
Source: PIADC

Rinderpest
Bovine, hard palate. The mucosa contains many small, coalescing, pale to dark red erosions or foci of necrosis.
Source: PIADC

Rinderpest
Bovine, hard palate. Palate erosion.
Source: PIADC

Rinderpest
Bovine, trachea. The mucosa is hyperemic and covered by abundant mucopurulent exudate.
Source: PIADC
Rinderpest
Bovine, ileum. Peyer's patches are depressed and covered by fibronecrotic exudate.
Source: PIADC

Rinderpest
Bovine, colon. There are many petechiae on the crests of the mucosal folds, and there are several small blood clots on the mucosal surface.
Source: PIADC

Rinderpest
Bovine, ileum. The mucosa is hemorrhagic and edematous, and the Peyer's patch is depressed (necrosis).
Source: PIADC

Rinderpest
Bovine, colon. The mucosa is edematous and contains many small hemorrhages and shallow erosions.
Source: PIADC

Rinderpest
Bovine, colon. The mucosa contains multiple longitudinal linear hemorrhages.
Source: PIADC

Screwworm Myiasis
Screwworm. Third instar screwworm larvae have dark tracheal tubes.
Source: Foreign Animal Disease "The Grey Book" USAHA

Emerging & Exotic Diseases of Animals 282
Screwworm Myiasis
Screwworm fly. The head of the adult fly is red-orange.
Source: Foreign Animal Diseases "The Grey Book" USAHA

Sheep Pox and Goat Pox
Sheep, inguinal skin. There are several coalescing macules contain petechiae.
Source: PIADC

Sheep Pox and Goat Pox
Sheep, inguinal skin. There are several coalescing macules.
Source: PIADC

Sheep Pox and Goat Pox
Sheep, scrotum. There are multiple papules on the scrotum and adjacent inguinal skin.
Source: PIADC

Sheep Pox and Goat Pox
Sheep, scrotum and inguinal skin. There are multiple red brown papules. There are two hemorrhagic ulcers on the medial aspect of the stifle.
Source: PIADC

Sheep Pox and Goat Pox
Sheep, subcutis. There are numerous hemorrhages, and several dark red round foci of hemorrhage and necrosis (beneath cutaneous pox).
Source: PIADC
Sheep Pox and Goat Pox

Goat, skin. Pox are coalescing red papules with central, slightly depressed, pale (necrotic) areas.

Source: PIADC

Sheep Pox and Goat Pox

Goat, udder. The skin contains two sharply demarcated necrotic foci (subacute pox).

Source: PIADC

Sheep Pox and Goat Pox

Sheep, skin. Several coalescing pox have pale tan (necrotic) centers.

Source: PIADC

Sheep Pox and Goat Pox

Goat. Two pox on the ventral tail have dessicated, dark red, undermined (necrotic and sloughing) centers.

Source: PIADC

Sheep Pox and Goat Pox

Goat, muzzle. The muzzle contains several papules and is partially covered by hemorrhagic nasal exudate.

Source: PIADC

Sheep Pox and Goat Pox

Goat. Abundant thick nasal exudate covers the muzzle and partially occludes the nares.

Source: PIADC
Sheep Pox and Goat Pox
Goat, skin. There are multiple coalescing papules (pox) that often have tan, dry (necrotic) centers.
Source: PIADC

Sheep Pox and Goat Pox
Small ruminant, lung. The lungs contain multiple discrete tan to red-brown nodules (multifocal interstitial pneumonia). Mediastinal lymph nodes are enlarged.
Source: PIADC

Sheep Pox and Goat Pox
Small ruminant, lung. Numerous nodules are scattered throughout the lung; the cranioventral red-brown consolidation is likely secondary bacterial pneumonia.
Source: PIADC

Sheep Pox and Goat Pox
Small ruminant, lung. There are numerous, small, coalescing, red-tan, consolidated foci (pneumonia).
Source: PIADC

Sheep Pox and Goat Pox
Small ruminant, lung. There are multiple red-brown consolidated foci (multifocal pneumonia).
Source: PIADC

Sheep Pox and Goat Pox
Small ruminant, lung. There are numerous raised pale nodules (multifocal pneumonia).
Source: PIADC
Sheep Pox and Goat Pox
Small ruminant, lung. There are multiple discrete, round, red-brown foci of consolidation (pneumonia).
Source: PIADC

Sheep Pox and Goat Pox
Goat, lung. There are multiple coalescing tan foci of consolidation (pneumonia), and the adjacent lymph node is markedly enlarged.
Source: PIADC

Sheep Pox and Goat Pox
Sheep, lung. The numerous widely disseminated discrete round tan foci are foci of pneumonia; a few have pale (necrotic) centers.
Source: PIADC

Sheep Pox and Goat Pox
Small ruminant, uterus. The endometrium contains several tan papules (pox) among the caruncles.
Source: PIADC

Swine Vesicular Disease
Pig, skin. There is a deep ulcer on the dorsum of the snout.
Source: ISU CVM

Swine Vesicular Disease
Pig, feet. There are multiple large erosions/ulcers of the coronary bands.
Source: PIADC

Emerging & Exotic Diseases of Animals 286
Swine Vesicular Disease
Pig, foot. The wall of the dewclaw is undermined adjacent to an ulcer at the coronary band.
Source: PIADC

Swine Vesicular Disease
Pig, skin. There are coalescing erosions on the teat.
Source: ISU CVM

Rhipicephalus appendiculatus - brown ear tick, vector of Theileriosis.
Source: PIADC

Theileriosis
Bovine, lung. The lung tissue is diffusely tan-brown, and lobules are noncollapsed and rubbery (interstitial pneumonia).
Source: PIADC

Theileriosis
Bovine, lung. Lung tissue is noncollapsed, contains multiple foci of hemorrhage, and there is fluid/foam within bronchi and interlobular septa.
Source: PIADC
Theileriosis
Bovine, lung. The lobules are noncollapsed (rubbery) and diffusely tan-brown, and interlobular septa are markedly expanded due to edema and emphysema.
Source: PIADC

Theileriosis
Bovine, popliteal lymph node. The node is enlarged and diffusely pale, and contains numerous petechiae.
Source: PIADC

Theileriosis
Bovine, kidney. The multiple pale foci on the cortical surface are lymphoid infiltrates.
Source: PIADC

Theileriosis
Bovine, kidneys. There are multiple petechiae on the surface of the cortex. The lymph node near the hilus is markedly enlarged.
Source: PIADC

Theileriosis
Bovine lymphoblasts contain intracytoplasmic Thiliera parva.
Source: PIADC
Transmissible Spongiform Encephalopathies
Brain. The red box indicates the region of the obex, the portion of the brainstem that is required for TSE diagnosis.
Source: Dr. S. Sorden, ISU CVM, VPTh

Tularemia
Beaver, liver. There are disseminated small pale foci of necrotizing hepatitis.
Source: Dr. G. Wobeser, CCWHC

Tularemia
Cat, lung. Numerous <1 mm diameter pale foci are disseminated throughout all lung lobes.
Source: Dr. J. Nietfeld, KSU CVM

Tularemia
Cat, spleen and liver. Numerous ~1 mm diameter pale foci are disseminated throughout the spleen; fewer pale foci are discernible in the liver lobe.
Source: Dr. J. Nietfeld, KSU CVM

Vesicular Stomatitis
Horse, mouth. There is extensive erosion of the lips at the mucocutaneous junction.
Source: ISU CVM

Vesicular Stomatitis
Bovine, mouth. There is extensive ulceration of the dental pad, and severe salivation.
Source: ISU CVM

289 Images of Diseases
Vesicular Stomatitis
Pig, skin. There is a large vesicle (bulla) on the dorsal snout.
Source: ISU CVM

Vesicular Stomatitis
Bovine, foot. The coronary band at the heels is thickened, multifocally eroded, and covered by dried necrotic exudate.
Source: PIADC.

Vesicular Stomatitis
Bovine, mammary gland. The distal teat is severely eroded and hemorrhagic.
Source: ISU CVM