



NATIONAL WILDLIFE HEALTH CENTER

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DIAGNOSTIC SERVICES CASE REPORT

CASE: 22575

Final Report

9/30/2009

EPIZOO: 2009-083

Legal ☐ INV#:

Declassified ☐

Submitter:

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Date Submitted: 5/21/2009

Specimen description/identification/Location:

ACC	SPECIES	SPECIMEN TYPE	BAND NUMBER	SUBMITTER'S ID	COUNTY	STATE
001	Salamander, Marbled	LIVE SPECIMEN			BLOUNT	TN
002	Salamander, Marbled	CARCASS			BLOUNT	TN
003	Salamander, Marbled	CARCASS			BLOUNT	TN
004	Salamander, Marbled	CARCASS			BLOUNT	TN
005	Salamander, Marbled	CARCASS			BLOUNT	TN
006	Salamander, Spotted	CARCASS			BLOUNT	TN
007	Salamander, Spotted	CARCASS			BLOUNT	TN
008	Salamander, Spotted	CARCASS			BLOUNT	TN
009	Salamander, Spotted	CARCASS			BLOUNT	TN

DIAGNOSIS

1. Ranavirus infection (culture confirmed) in 1 of 5 marbled salamanders (001)
2. Presumptive ranavirus infections (histological diagnoses only) in 8 of 8 ethanol-fixed salamanders (002-009)
3. Skin and oral hemorrhages probably due to ranavirus infection in 5 of 5 marbled salamanders (001-005)
4. Liver necrosis probably due to ranavirus infection in 8 of 9 salamanders (001-007 and 009)
5. Mesomycetozoon muscle infection by *Ichthyophonus* sp in 2 of 5 marbled salamanders (001 and 005)

Comment:

The cause of death in each of these 9 salamanders, and the probable cause of the mortality event at this site, were infections by *Ranavirus*. A *Ranavirus* was isolated in cultures of visceral organs of the one live salamander that was submitted, and histological changes in the skins, mouths, livers and stomachs of all 9 salamanders were consistent with ranaviral infection.

Externally, all of the marbled salamanders and one of the spotted salamanders had pin-point hemorrhages (petechiae) in their skin around the mouth, gular area, ventral body and vent. In some salamanders the petechiae were so numerous that they were coalescing into a paint-brush pattern. All five of the marbled salamanders also had hemorrhages in the oral mucosa (mouth, tongue, palate, lips) but this abnormality was not detected in the spotted salamanders, grossly or histologically. Internally, all but one salamander showed slight to moderate necrosis of cells in the liver affecting liver cells, blood vessel cells lining the sinusoids (endothelial cells) and bone marrow-like cells under the capsule of the liver. The livers of only a few salamanders showed characteristic basophilic (blue) inclusion bodies in the cytoplasm of liver cells. Similar ranaviral inclusion bodies also were found in the stomach of one spotted salamander.

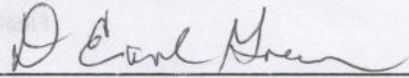
Incidental findings in these salamanders were few. Two marbled salamanders had <5 tiny *Ichthyophonus* organisms in skeletal muscle cells (Diagnosis #5, above). These infections consisted of very small organisms and no host inflammatory cell reaction; therefore, these infections probably occurred only a few days before the deaths of the larvae. Three of 4 spotted salamanders had limb abnormalities; these consisted of one missing left forelimb (amelia), one very small right hindlimb (micromelia), and one right foot that was amputated. A precise cause for these limb abnormalities was not detected; there was no histological evidence of infection of these salamanders by the malformation-inducing parasite, *Ribeiroia ondatrae*.

In summary, ranaviral infection was confirmed by cultures and histological changes in one live marbled salamander, and based entirely on histological examinations, was the probable cause of death in the other 8 ethanol-fixed salamanders. The only other infectious disease that was detected in this group of salamanders was a minimal recent infection by *Ichthyophonus* in 2 marbled salamanders.

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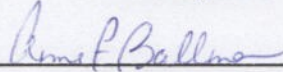
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If you have questions regarding this case, contact:



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Diagnostic findings may not be used for publication without the pathologist's knowledge and consent.

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