

Animal Health Monitor

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Articles of Interest:

- ⇒ **Important Changes for Diagnostic Submissions at the AHC**
- ⇒ **BC Cases of West Nile Virus**
- ⇒ **Potomac Horse Fever in North-eastern BC**

Inside this issue:

Phorid Flies Parasitizing Honeybees in BC	2
BC Zoonoses Symposium	3
Potomac Horse Fever in North-eastern BC	3
BC Cases of West Nile Virus	4
Dr. Tony Redford—AHC's New Avian Pathologist	5
BC Equine Disease Report is up and Running at the AHC Website	5
Milk C&S Results	6
Calendar of Events	7

Important Changes for Diagnostic Submissions at the Animal Health Centre by Dr. Chelsea Himsworth

To our valued clients,

To better ensure that we are able to provide a consistent standard of diagnostic service, including the management of case information, effective October 3, 2016 date, the Animal Health Centre (AHC) will be implementing three important changes.

1) We will only accession animals and samples submitted with the current official AHC submission forms, which can be accessed via our website www.gov.bc.ca/animalhealthcentre. Non-official (e.g., clinic-specific) forms, prior versions of AHC forms, and species inappropriate forms (e.g., using the Mammalian form for an Avian submission) will no longer be accepted. It is now our laboratory policy that samples and animals will not be processed until the correct paperwork is received. If the correct paperwork is not received within 24 hours for fresh fish, horses, and cattle, then the animal will be disposed of without necropsy or testing. All other animals and samples will be held for 5 business days prior to disposal. Please understand that any delay may compromise the diagnostic integrity of the specimen.

2) All submission forms now have mandatory fields (e.g., owner information, species, etc.). If the mandatory fields are not completed, then the animal or sample will be held until this information is received. If the information is not received, then the animal/sample will be disposed of as per the aforementioned guidelines.

If the form we receive is incomplete or incorrect, then our front office staff will contact you to solicit the needed paperwork/information. However, it is ultimately the

responsibility of the submitter to ensure that the correct paperwork/information is submitted to the AHC in a timely manner. This policy aims to ensure that we are able to provide the highest and most consistent standard of diagnostic service.

3) For our clients submitting samples from calves, I have the great pleasure of introducing our first "testing package". The package will be for fecal samples from scouring calves less than 2 weeks of age (excluding necropsy cases). It will include the following tests: culture and sensitivity which includes *Salmonella sp.* culture, polymerase chain reaction (PCR)-based typing of *E. coli* to detect enterotoxigenic and enteropathogenic strains, smear for *Cryptosporidium spp.*, and PCR for rotavirus and coronavirus. The cost of the package will be \$110.00, which represents a 36% savings over ordering these tests individually. You can order the package by indicating "Calf Scours Package" in the "Other" section under "Services Requested" in the Mammalian Submission Form. By introducing the package, we hope to make it easier for veterinarians to select the best tests for this condition. Additionally, standardizing testing will make it easier for us to collate and compare data regarding calf scours within and among years - information that can then be fed back to stakeholders.

If you have any questions or concerns about these new policies and practices, please contact me during regular office hours as follows:

Telephone: 1-800-661-9903 or 604-556-3003 or
E-mail at Chelsea.Himsworth@gov.bc.ca
Chelsea Himsworth DVM, MVetSc, Dipl ACVP, PhD
Leader for Veterinary Science and Diagnostics

Phorid Flies Parasitizing Honeybees in BC by Paul van Westendorp

In late August, the media reported about “Zombie Bees” on Vancouver Island as the first confirmed case in Canada. The news item was subsequently picked up and carried by all major Canadian networks, regional and local news outlets.

The common theme of the Zombie Bee phenomenon was of adult honeybees being attracted to porch lights at night where they displayed abnormal motor coordination, exhaustion and death.



A. borealis, adult female

The term “Zombie Bees” was first coined and described by Dr. John Hafernik of San Francisco State University - SFSU in 2012. The abnormal bee behavior was the result of parasitism by the Phorid fly *Apocephalus borealis*. *A. borealis* is a natural parasitoid of some bumblebee and wasp species. The adult fly seeks an adult bee, pierces the abdominal cuticle and deposits its eggs. Successive larval stages feed on the host’s tissue steadily weakening the host until it dies. Before death, the parasitized bee displays abnormal behavior including flight at night. Just prior to its pupal stage, the larva will emerge from the dead bee, search for a suitable location to pupate before it will complete its development and emerge as an adult fly.

The confirmation of *A. borealis* parasitizing honeybees is a new development since it was not known to parasitize honeybees. While further studies are needed, it is not believed that *A. borealis* poses a serious threat to honeybee colonies at this time.

It is important to put the phorid fly issue in proper context. The Phoridae is one of the largest families of the order *Diptera* with cosmopolitan distribution. Most species are scavengers that feed on rotting plant material and fungal mycelium, while some others are cadaver feeders. Only very few species are parasitoids of Hymenoptera, including bees.

A. borealis’ strategy of parasitism is not unique and resembles that of many solitary wasps. Adult flies must seek a foraging honeybee and have enough time to pierce the abdominal cuticle to deposit its eggs. The success rate of infestation is dependent on the relative abundance of foraging honeybees and phorid flies in any given location. Phorid flies have never been observed inside the honeybee colony and it is assumed that frequent grooming among bees would prevent nest infiltration. Unlike bumblebee colonies that are comprised of a few dozen individuals, a typical honeybee colony during summer may include over 30,000 bees. At such time, a colony raises as many as 1,500 bees each day, while some 1,000 bees die each day.



A. borealis on left wing of bumblebee



A. borealis larvae and pupa on parasitized honeybees

High population turn-over is a natural phenomenon as bees die of old age, disease, environmental pollutants, inclement weather, beekeeper mismanagement and due to predation and hazards in the field. Field hazards include exposure to predatory wasps, inclement weather, spider webs and crab spiders, traffic road kill and phorid fly predation.

While *A. borealis* may parasitize honeybees, it is believed that it will have a negligible impact on healthy honeybee colonies. Other pathogens including Varroa mites, American Foulbrood Disease and Nosema pose far greater threats to honeybee populations.

Save the Date for Zoonotic Diseases Continuing Education by Dr. Brian Radke

The 15th BC Zoonoses Symposium will occur on November 17, 2016 at the Langley Golf Centre in BC's Fraser Valley. This collaborative, interdisciplinary symposium provides an opportunity for professionals from across BC to gather, network and learn about disease issues affecting animals and humans. The symposia include presentations on a wide variety of One Health Topics. The agenda for this year's symposium is being finalized and will include information on Echinococcus, avian influenza, Zika virus and a raw pet food case study. For information on this year's symposium including registration, please see [http://www.bccdc.ca/health-professionals/education-development/zoonotic-symposiums-\(zoonoses\)](http://www.bccdc.ca/health-professionals/education-development/zoonotic-symposiums-(zoonoses)). Again this year, there is no registration fee for the symposia, but registration is required for planning purposes. Webinar participation in the symposium was very well received last year and is available again this year.

Typically, approximately 100 attendees are present in person, and last year the webinar participation quickly reached its maximum of 60. The audience included public health inspectors, public health physicians, public health researchers, students and veterinarians and animal health technicians. Presentations at last year's symposium are available at [http://www.bccdc.ca/health-professionals/education-development/zoonotic-symposiums-\(zoonoses\)/14th-zoonotic-symposium/presentations](http://www.bccdc.ca/health-professionals/education-development/zoonotic-symposiums-(zoonoses)/14th-zoonotic-symposium/presentations)

Topics from last year's presentations included avian influenza, rabies, anaplasmosis, blastomycosis and psittacosis.

Brian Radke, Public Health Veterinarian, on behalf of the Symposium planning committee, including Melissa McLaws, Kirsten Mitchell, Mohammad Morshed, and Helen Schwantje.

Potomac Horse Fever Along the Fraser River in Northeastern British Columbia by Dr. Ann Britton

A 14 year old Quarter horse cross with a 4 day history of diarrhea progressing to death was reported from the Robson Valley area of the Fraser River south of McBride in northeast British Columbia. Potomac horse fever was diagnosed by the Animal Health Centre on the basis of PCR testing with confirmatory sequencing on the colitis.

Potomac horse fever (also known as equine monocytic ehrlichiosis) is a seasonal disease caused by the *Neorickettsia risticii* (formerly *Ehrlichia risticii*). The disease is most commonly diagnosed in late summer and early fall and has greatest prevalence in the northeastern and midwestern areas of the USA. Cases have also been reported from Canada.

Affected horses are often living near waterways or rivers. *N. risticii* completes its life cycle by infecting larval trematodes which use snails and aquatic insects to complete their life cycle. Infection of horses can occur upon consumption of snails or aquatic insects such as caddisflies and mayflies.

The disease initially causes anorexia, depression and fever followed in most horses by moderate to severe diarrhea. Vaccination is available.

BC Cases of West Nile Virus by Dr. Brian Radke

West Nile Virus (WNV) infection has been confirmed in 10 horses and 2 crows in BC. Nine of the equine cases are located in the south Kootenays, and 1 case is in the Fraser Valley. The distribution within the Kootenays is: 3 around Creston, 4 in the Cranbrook area, 1 each in the region of Castlegar and the south half of Kootenay Lake. All cases occurred on separate premises.

The 10 cases vary in age from 4 to over 20 years old and onset of clinical signs ranged from August 7 to Sept 5. Their clinical presentations varied and included lethargy, impaired mentation, ataxia, proprioceptive deficits, and muscle fasciculations. All cases had a positive IgM tests as determined at various labs including Cornell, IDEXX and Prairie Diagnostic Services. The combination of clinical signs and positive IgM titre meet the provincial and federal government's confirmed WNV case definition.

One of Kootenays cases and the Fraser Valley case had arrived from the US and Alberta, respectively, within 10 days of the appearance of clinical signs. So WNV infection of these horses outside BC cannot be ruled out. Follow-up is occurring to determine the cases' vaccination status and case sequelae. Data from a few cases indicates the animals were not current in their WNV vaccinations (and typically were never vaccinated for WNV) and the cases are recovering.

Kootenay practitioners report additional neurological equine cases with a high index of suspicion for WNV, but owners declined diagnostic testing. This year, equine cases of WNV disease have been diagnosed in the Washington state, northern Idaho (including the county that borders BC) and Taber, Alberta.

Two dead crows were collected on August 8th and 11th within 30 meters of each other in Cranbrook and submitted to the Animal Health Centre. No gross lesions were noted on necropsy and both tested

strongly positive for WNV using PCR. Results for all cases were shared with BC public health officials.

WNV has not previously been diagnosed in horses in the Kootenays. The cluster of Kootenay cases confirms the risk of WNV. Horse owners and veterinarians are reminded that BC WNV cases typically occur in August or September. Appropriately timed vaccination, management of mosquito habitat (such as standing water) and avoiding mosquito exposure (staying inside at dusk and dawn, and use of insect repellent) are techniques to reduce the risk of WNV infection. There were no confirmed BC cases of WNV in the previous 2 years; an Okanagan horse was confirmed with WNV in 2013.

WNV is a notifiable disease in BC. Notifications can be made to Dr. Jane Pritchard, BC's Chief Veterinary Officer. In a clinically ill horse, IgM titres are the preferred WNV test because a positive test result, in conjunction with appropriate clinical signs, is confirmatory for a clinical case of WNV. In contrast, IgG or SN (serum neutralization) titres require a minimum 4-fold rise between *paired* sera because vaccination or historical natural infection can be reflected in the titres.

Equine practitioners are also invited to utilize the BC Equine Disease Surveillance Report available at <http://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/animals-and-crops/animal-health/reportable-notifiable-diseases/equine-disease-report>.



Dr. Tony Redford—New Avian Pathologist

We are excited to announce that Dr. Tony Redford will be joining the Animal Health Centre (AHC) Team as an Avian Pathologist.

Tony is originally from Kamloops, BC, where he was born, grew up, and completed his BSc at Thompson Rivers University. He then completed his DVM degree at the Western College of Veterinary Medicine, and followed that up with graduate studies in anatomic pathology (also at the WCVM).

Tony has long been committed to the AHC and its clients. Indeed, during his time at the WCVM, Tony spent five summers studying and working at the AHC. He looks forward to becoming a valuable part of the avian health team, and helping to contribute to poultry, companion, and wild avian health in BC.

When he is not covered in feathers, he enjoys hiking, backpacking and snowshoeing with his wife Melissa.



BC Equine Disease Report is up and Running at the AHC Website by Dr. Ann Britton

In consultation with equine veterinarians in the province, the Animal Health Centre (AHC) has created a new page on our website called BC Equine Disease Surveillance and Report. The goal of the page is to act as a real time resource for monitoring and reporting of reportable, notifiable and other diseases of interest to equine veterinarians, horse-owners and stakeholders in the provincial industry. The page lists the reportable and notifiable diseases of horses which by law must be reported to the Chief Veterinary Officer (CVO) of BC upon diagnosis (the page also provides a link for reporting to the CVO). At the bottom of the page, you can find the BC Equine Disease Report. This section reports the reportable and notifiable diseases diagnosed in the province including dates, location and clinical and diagnostic information, as well as outcomes. Once a disease has been reported to the CVO, the page manager will verify the information and post to the site.

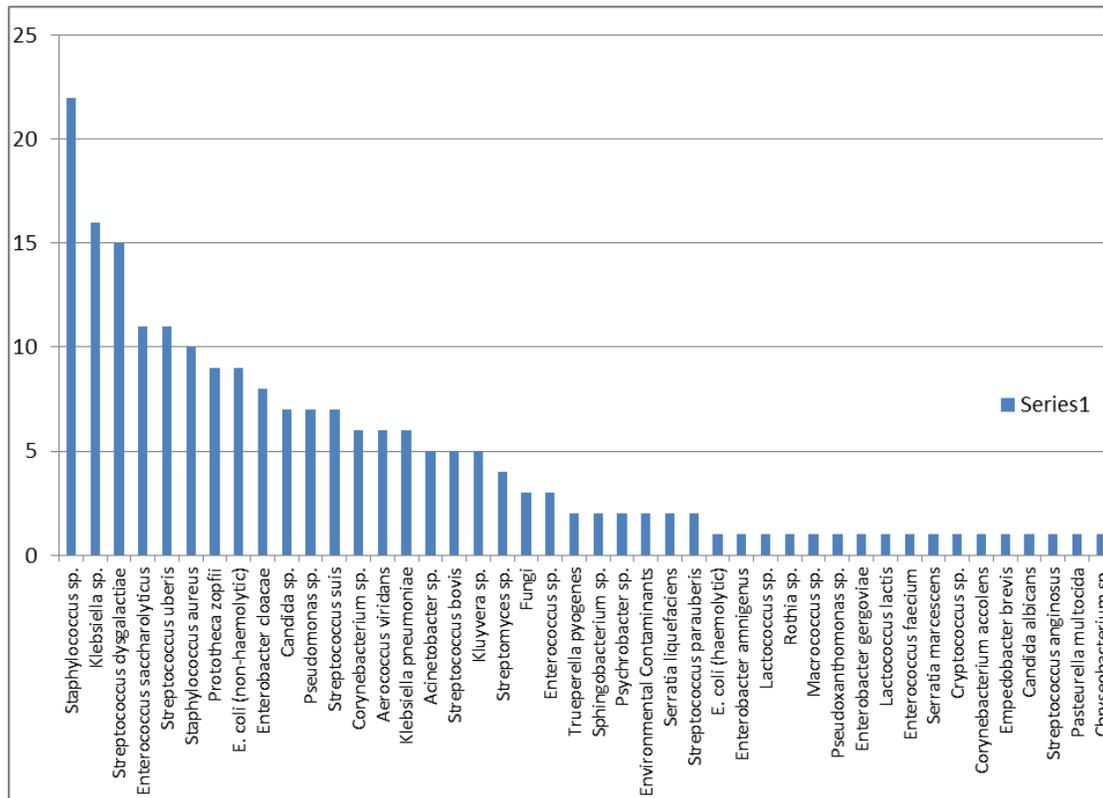
Other diseases of interest for which there is no requirement for official reporting, such as Strangles and Potomac Horse Fever, will also be reported on the site. Information regarding these diseases will be posted upon diagnosis either at the AHC or on request from the attending veterinarian when the diagnosis has taken place at another veterinary diagnostic laboratory. Again, once the information is verified, the posting will appear in the BC Equine Disease Report. Note that confidentiality for the horse and owner is paramount in the reporting process, and thus the location will indicate only the general area in which the horse is located.

You can access the new page here: <http://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/animals-and-crops/animal-health/reportable-notifiable-diseases/equine-disease-report>

The AHC is also providing direct email alert service for veterinarians which coincides with postings to the Disease Report. Veterinarians who wish to be added to the email alert service should contact Dr. Ann Britton at 1-800-661-9903 or Ann.P.Britton@gov.bc.ca.

Milk Culture Results by Dr. Jane Pritchard

January 1–September 30, 2016—Results of milk cultures sorted by frequency of isolation.



Between January 1 and September 30, 2016, 194 milk samples (68 submissions) were received for culture and sensitivity at the Plant and Animal Health Centre. Out of the 194 samples submitted, no bacteria was isolated in 28 samples.

Resistance by Isolate	amp	kf	ob	e	xnl	p10	pyr	sxt	tet	# of isolates tested
Staphylococcus sp.	14%	0%	14%	5%	0%	14%	14%	0%	5%	22
Klebsiella sp.	88%	31%	94%	94%	19%	94%	94%	0%	13%	16
Streptococcus dysgalactiae	0%	0%	0%	0%	7%	0%	0%	0%	27%	15
Enterococcus saccharolyticus	9%	9%	91%	18%	9%	0%	73%	0%	91%	11
Streptococcus uberis	9%	0%	73%	18%	0%	18%	18%	9%	18%	11

amp - ampicillin	ob - cloxacillin	xnl - excenel	pyr - pirlimycin	sxt - sulfamethoxazole/trimethoprim
kf - cephalothin	e - erythromycin	p10 - penicillin	tet - tetracycline	

Calendar of Events

“Keeping Your Flock Healthy Workshops”



Sessions will focus on health, disease detection, and biosecurity related to small lot poultry production.

For more information contact:

Clayton.Botkin@gov.bc.ca or Victoria.Bowes@gov.bc.ca

CRANBROOK—Oct 8/16, Heritage Inn, 8:30-4:30pm
Register via Top Crop Garden Farm and Pet

KAMLOOPS—Nov 7(evening) & 8(afternoon), Sandman Arena
Register via Kamloops Parks, Recreation and Culture

LILLOOET—Nov 26/16, 8:30-4:30pm

COOMBS—Jan 28/17, Coombs Fairgrounds, 8:30-4:30pm

“Keeping Your Sheep & Goats Healthy Workshops”



Sessions will focus on health, nutrition, disease and biosecurity related to sheep and goat flocks.

For more information contact:

Glenna.McGregor@gov.bc.ca or Lori.Vickers@gov.bc.ca

PENTICTON—Oct 22/16, Okanagan College, 8:30-4:30pm

KAMLOOPS—Oct 29/16, Thompson Rivers University, 8:30-4:30pm



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Past editions of the Animal Health Monitor can be found on our website:

<http://www.agf.gov.bc.ca/ahc/AHMonitor/index.html>

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