SUSCEPTIBILITY OF LAUGHING GULLS (LEUCOPHAEUS ATRICILLA) AND MALLARDS (ANAS PLATYRHYNCHOS) TO RUDDY TURNSTONE (ARENARIA INTERPRES MORINELLA) ORIGIN TYPE A INFLUENZA VIRUSES

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Practice question:

Which of the following is an OIE-listed notifiable disease if diagnosed in a laughing gull?

1. Eastern equine encephalitis virus
2. Influenza A virus
3. Avian pox (*Avipoxvirus*)
4. Wellfleet Bay virus

Answer: B

## GENETIC CHARACTERIZATION OF H13 AND H16 INFLUENZA A VIRUSES IN GULLS (LARUS SPP.) WITH CLINICALLY SEVERE DISEASE AND CONCURRENT CIRCOVIRUS INFECTION

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**Co-infection with which virus has been associated with clinical signs of illness in gulls (Laridae) carrying influenza A virus?**

1. Avian bornavirus
2. **Circovirus**
3. West Nile virus
4. Polyoma virus
5. Herpesvirus

**What is the target organ of avian circoviruses?**

1. **Bursa of fabricius**
2. Bone marrow
3. Spleen
4. Central nervous system
5. Liver

Ballard, Jennifer R., et al. "Prevalence and distribution of Wellfleet Bay virus exposure in the common eider (Somateria mollissima)." *Journal of wildlife diseases* 53.1 (2017): 81-90.

Abstract: Between 1998 and 2014, recurrent mortality events were reported in the Dresser's subspecies of the Common Eider (*Somateria mollissima dresseri*) on Cape Cod, Massachusetts, US near Wellfleet Harbor. The **early die-offs were attributed to parasitism and emaciation, but beginning in 2006 a suite of distinct lesions was observed concomitant with the isolation of a previously unknown RNA virus. This novel pathogen was identified as an orthomyxovirus in the genus *Quaranjavirus* and was named Wellfleet Bay virus (WFBV).** To assess evidence of exposure to this virus in Common Eiders, we **conducted a longitudinal study of the prevalence of WFBV antibodies at multiple locations from 2004–14;** we collected 2,258 serum samples from six locations and analyzed each using a microneutralization assay. Results corroborate the emergence of WFBV in 2006 based on the first detection of antibodies in that year. **Significantly higher prevalence was detected in Common Eiders sampled in Massachusetts compared to those in Maine, Nova Scotia, and Québec.** For birds breeding and wintering in Massachusetss, **viral exposure varied by age, sex, and season of sampling, and prevalence by season and sex were highly interrelated with greater numbers of antibody-positive males in the autumn and females in the spring.** No evidence of viral exposure was detected in the Northern subspecies (*Somateria mollissima borealis*). Among the locations sampled, **Massachusetts appears to be the epicenter of Common Eider exposure to WFBV.** Further research is warranted to understand the factors controlling the epidemiology of WFBV in Massachussetts, including those that may be limiting geographic expansion of this virus.

Q: Wellfleet Bay virus (WBV), a novel pathogen associated with die-offs of Common Eiders (*Somateria mollissima dresseri*) in Massachusetts, is caused by what type of virus?

1. Arbovirus
2. Orthomyxovirus
3. Herpesvirus
4. Bornavirus
5. Paramyxovirus

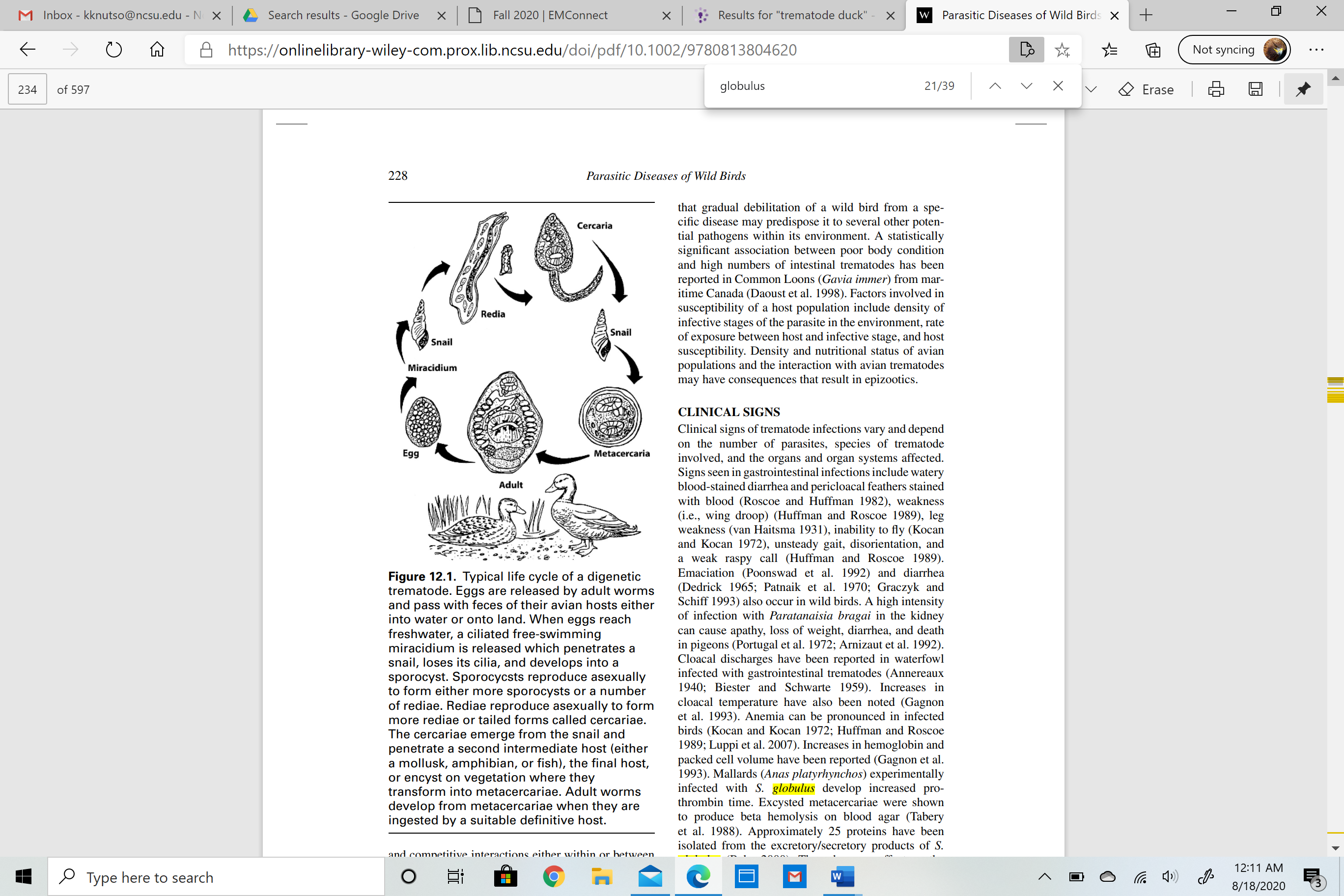
A: B – Orthomyxovirus

In a recent study evaluating the effects of stress on plasma protein electrophoresis two anseriforme species, which of the following correlations was found?

* a. Increased plasma corticosterone; increased prealbumin
* b. Increased total heterophil and eosinophil count; decreased albumin
* c. Decreased total heterophil and eosinophil count; increased beta fraction
* d. Decreased plasma corticosterone; decreased gamma fraction
* e. Decreased plasma corticosterone; decreased alpha 1 fraction

Question #1:

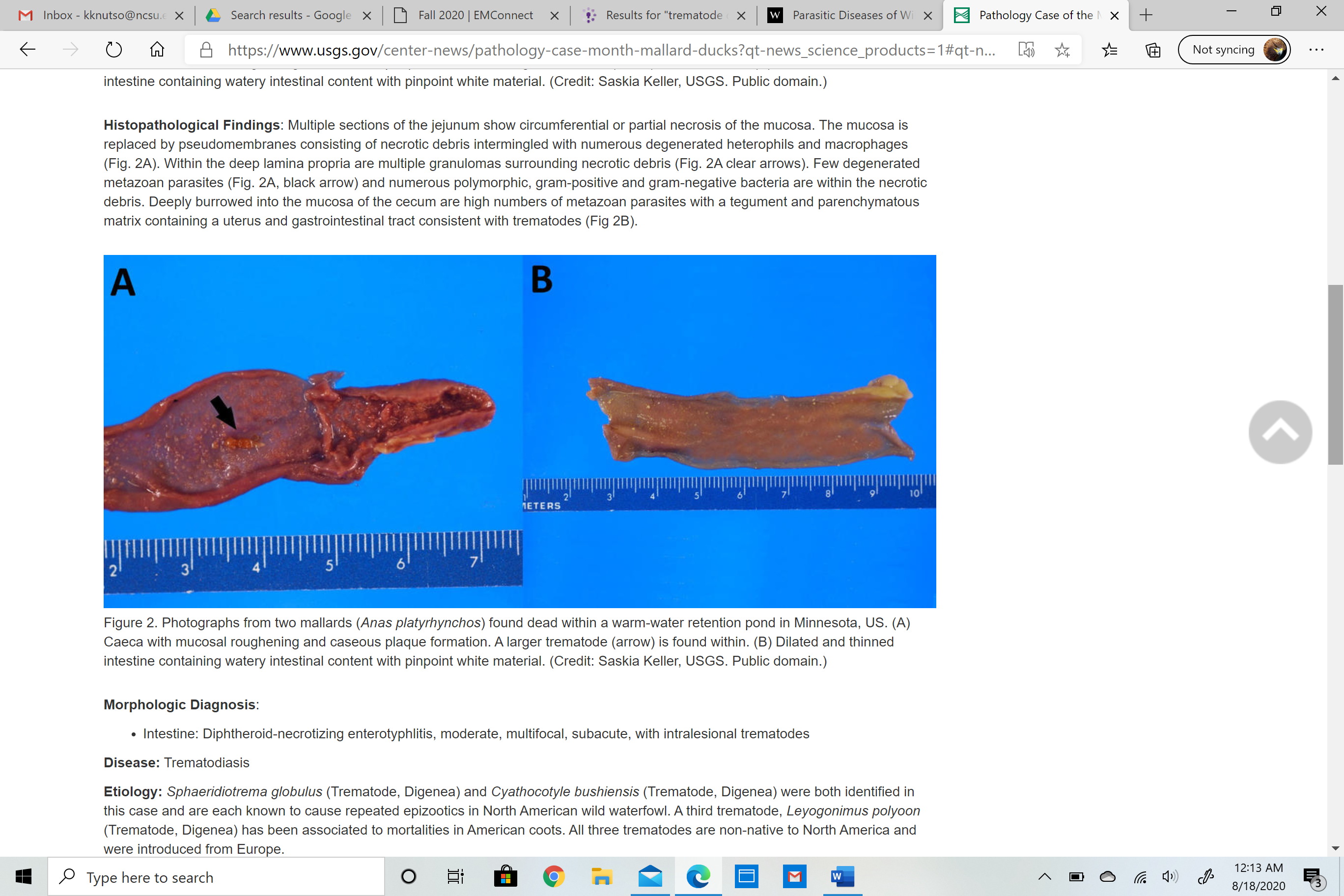
Describe the life cycle of the trematode *Sphaeridiotrema globulus.*



Non-native faucet snail *(Bithynia tentaculata*) is the only known first intermediate host for *S. globulus*.

Question #2:

Name the organ system affected and describe 1-2 lesions associated with *Sphaeridiotrema globulus* infection in a duck.



* Gastrointestinal tract
  + severe hemorrhagic ulcerative enteritis, mainly in small intestine
  + ballooning of jejunum and ileum, affected intestine may have generalized cyanotic appearance
  + foci of hemorrhage circumscribe trematodes, visible through serosa