

Infectious Diseases Update

J Scott Weese DVM DVSc DipACVIM



An unidentified illness has killed dozens of dogs in Michigan



Trixie, a comfort dog, waits to greet students in Paw Paw, Michigan, on Dec. 2, 2021. (Martha Irvine / AP)

What are some possible explanations for unusual outbreaks?

- Normal disease, normal circumstances
- Normal disease, unusual circumstances
- Pseudo-outbreak: increased discussion of the baseline number of cases that gets perceived as an increase
- Normal disease that has changed somehow
- New disease

What are some possible explanations for unusual outbreaks?

- **Normal disease, normal circumstances**
- **Normal disease, unusual circumstances**
- Pseudo-outbreak: increased discussion of the baseline number of cases that gets perceived as an increase
- Normal disease that has changed somehow
- New disease



- Parvovirus outbreak in inadequately vaccinated dogs
 - Not vaccinated
 - Only vaccinated at <16 weeks of age
 - Vaccines with questionable quality or cold chain
- Initial parvo tests were negative

Parvo vaccination goals

- Get a least one dose into the dog at a time where their immune system will respond
- Start young to try to get early protection
- Repeat until at least 16 weeks of age to be confident in adequate response
- Consider an extra vaccine dose in higher risk situations

2022 AAHA Canine Vaccination Guidelines

John Ellis, DVM, PhD, DACVP, DACVM[†], Elizabeth Marziani, DVM[†],
Chumkee Aziz, DVM, DABVP (Shelter Medicine Practice), Catherine M. Brown, DVM, MSc, MPH,
Leah A. Cohn, DVM, PhD, DACVIM, Christopher Lea, DVM, DABVP (Canine and Feline Practice),
George E. Moore, DVM, PhD, DACVIM, DACVPM, Neha Taneja, MBA, MSHCM, LVT

- Parvovirus vaccination recommendations for shelters
 - Puppies
 - Administer MLV vaccine to all puppies 4 weeks of age or greater
 - Boost every 2-3 weeks until 18-20 weeks of age
 - Dogs \geq 18-20 weeks
 - Administer MLV vaccine and boost 2-3 weeks later

Infection control take home messages

- Common things occur commonly
 - An uncommon presentation of a common disease is more likely than something new (but we can't ignore emerging diseases)
 - Tests are not infallible
- **You don't need an answer to act**
- Standard infection control measures typically apply to most (if not almost all) of diseases....known or unknown
 - Identification and isolation of sick and exposed animals
 - Cohorting
 - PPE
 - Cleaning and disinfection
 - Communication
 - ...

Monkeypox

Worms & Germs Blog

PROMOTING SAFE PET OWNERSHIP

Human-to-Dog Monkeypox, France

By [Scott Weese](#) on August 11, 2022

POSTED IN [DOGS](#), [OTHER DISEASES](#)

I'll start this off with "***don't freak out, overhype this, or be paranoid about your dog.***" (I'll probably end with that too).

A recent report in [Lancet \(Seang et al. 2022\)](#) describes a pretty solid case of suspected monkeypox virus (MPXV) transmission from people to a dog. The



Correspondence



Evidence of human-to-dog transmission of monkeypox virus

Published Online
August 10, 2022
[https://doi.org/10.1016/S0140-6736\(22\)01487-8](https://doi.org/10.1016/S0140-6736(22)01487-8)

See Online for appendix

Human monkeypox virus is spreading in Europe and the USA among individuals who have not travelled to endemic areas.¹ On July 23, 2022, monkeypox was declared a Public Health Emergency of International Concern by WHO Director-General Tedros Adhanom Ghebreyesus.²

domesticated cats and dogs could be a vector for monkeypox virus is unknown. Here we describe the first case of a dog with confirmed monkeypox virus infection that might have been acquired through human transmission.

Two men who have sex with men attended Pitié-Salpêtrière Hospital, Paris, France, on June 10, 2022 (appendix). One man (referred to as patient 1 going forward) is Latino, aged 44 years, and lives with HIV

patient 1, anal ulceration was followed by a vesiculopustular rash on the face, ears, and legs; in patient 2, on the legs and back (figure A, B). In both cases, rash was associated with asthenia, headaches, and fever 4 days later.

Monkeypox virus was assayed by real-time PCR (LightCycler 480 System; Roche Diagnostics, Meylan, France). In patient 1, virus was detected in skin and oropharynx samples; whereas in patient 2, virus was detected in anal and oropharynx samples.

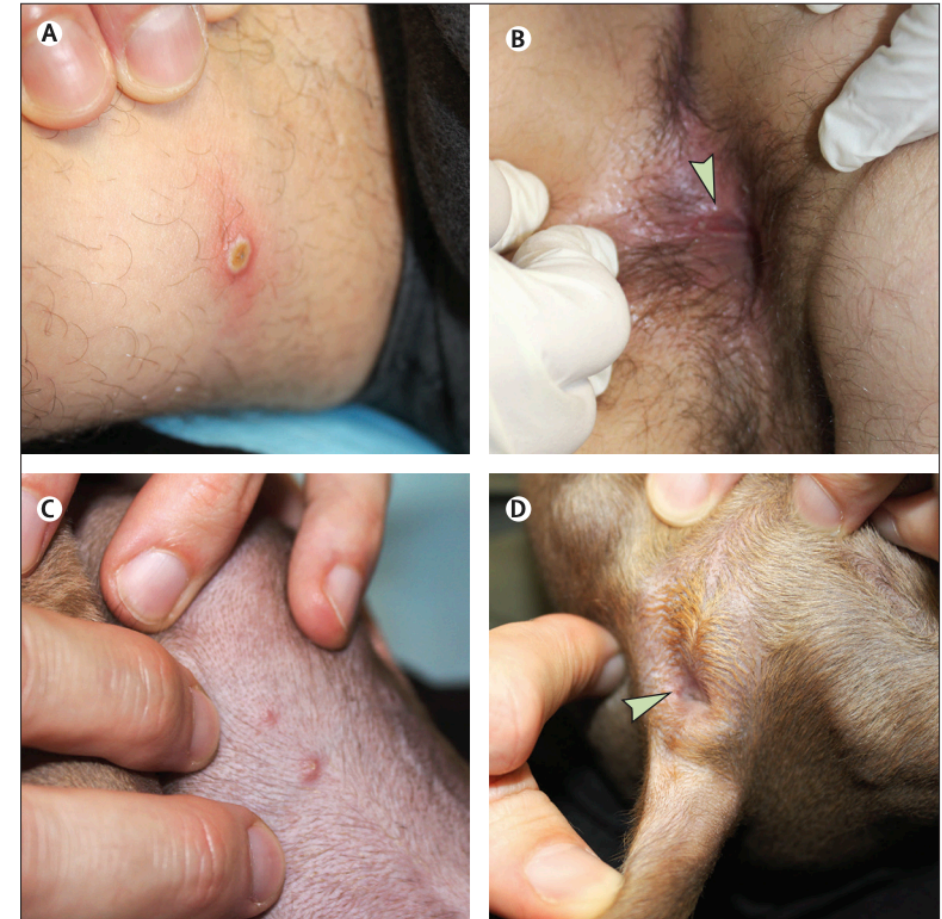
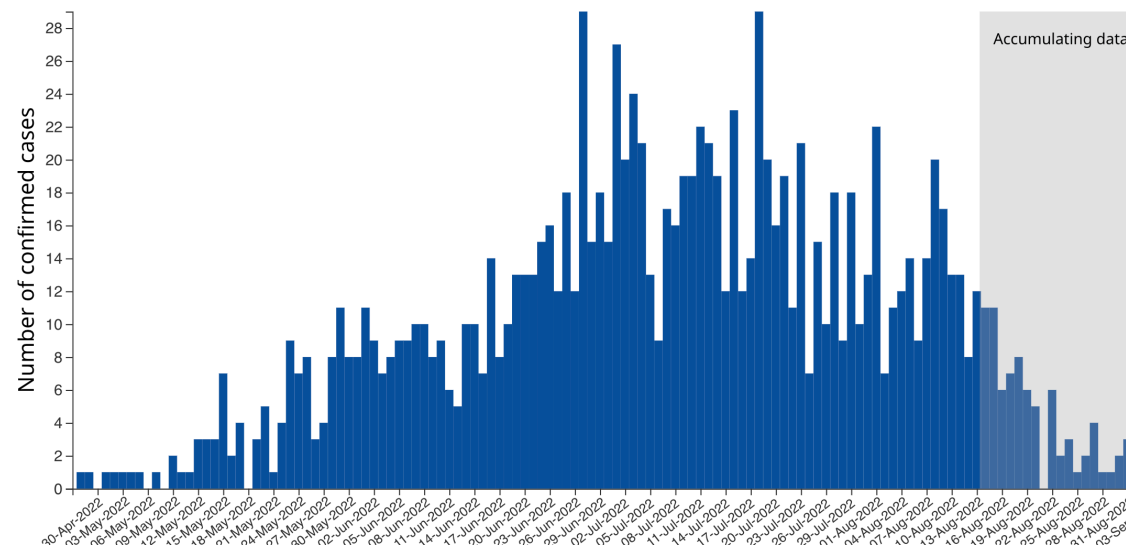
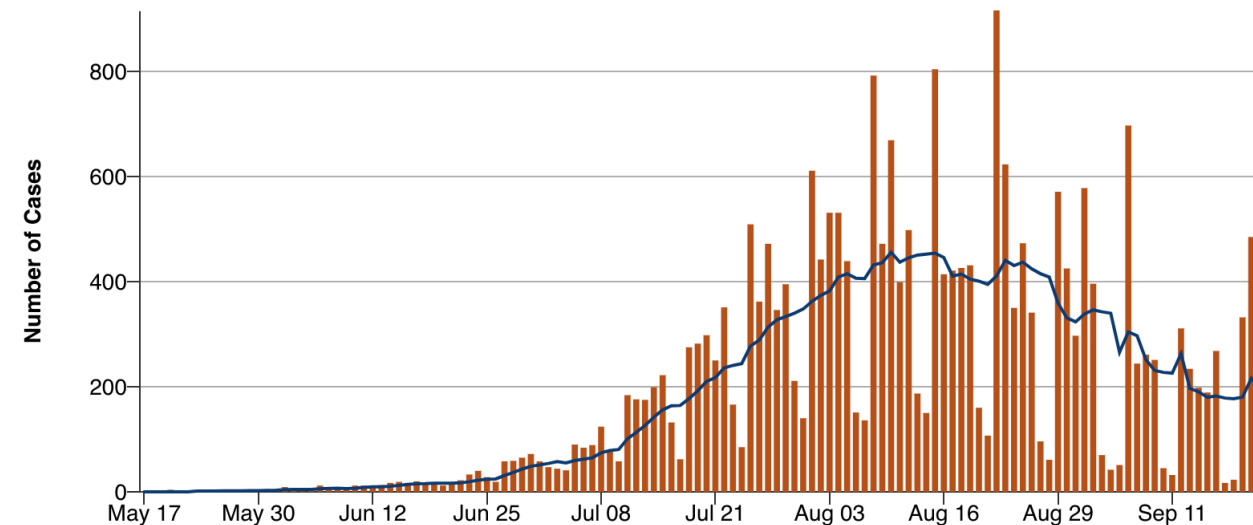


Figure: Skin and mucosal lesions in two male patients and their dog with confirmed monkeypox virus
(A) Pustular lesion of the thigh, with central umbilication and the onset of necrosis, in patient 1.
(B) Erosive and pustular anal lesions in patient 2. (C) Two slightly crusty erythematous papules in the dog.
(D) Millimetric erosive anal lesion in the dog

Figure 2. of confirmed monkeypox cases (n=1,238) in Canada by date as of At 30, 2022, 12 pm Eastern



Daily Monkeypox Cases Reported* and 7 Day Daily Average



What concerns might we have about animals?

- Disease in animals
- Animals as sources of sporadic human infection
- Establishment of reservoirs in currently non-endemic areas

Basic questions/issues

- Potential range of susceptible species
 - Unknown...potentially broad
 - Main concern for reservoirs are rodents, including squirrels
- What is exposure?
 - Probably...household or other direct contact with an infected person in the past 21 days

- Duration of infectivity of animals
 - Unknown
 - Probably varies from very short (few days) in incidental hosts to very long (or lifelong) in reservoir hosts
- Route of transmission
 - Direct contact (esp with skin lesions)
 - Potential (but probably limited) risk from aerosol

- Should we query monkeypox exposure status of any shelter admissions?
 - No
- Should we be prepared to act if an exposed animal is identified?
 - Yes

- Infection control basics
 - PPE to reduce direct contact is the key
 - Isolation to reduce exposure/contamination risks
 - Susceptible to alcohol-based hand sanitizers
 - Susceptible to routine disinfectants (if used right)
 - Respiratory precautions could be considered in high-risk situations (esp aerosol generating procedures)

Veterinary Clinics and Monkeypox

What is monkeypox?

- Monkeypox (MPX) is a viral infection caused by monkeypox virus (MPXV), a member of the Orthopoxvirus genus. MPXV is a double stranded enveloped DNA virus. Although the virus was first described in monkeys (hence the name), a variety of African rodent species are likely the natural reservoirs, but our understanding of which species are susceptible is poor. It is endemic in wildlife reservoirs in some parts of Central and West Africa.
- In 2022 an outbreak of MPX being driven by human-human transmission has resulted in thousands of human cases in countries around the world. This has created the potential for exposure of animals in non-endemic regions and raised questions about the potential for infection in animals (both wild and domestic), establishment of additional animal reservoirs of MPX, and further zoonotic transmission.
- Currently, MPX in Canada is driven exclusively by human-human transmission, but the risk of spillover into animals cannot be discounted.



Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

Monkeypox

[CDC](#) > [Poxvirus](#) > [Monkeypox](#) > [Veterinarians](#)



Monkeypox

Your Health +

2022 Outbreak Cases & Data +

Examining Animals With Suspected Monkeypox

Updated November 19, 2021 [Print](#)



CoVaRRNet

ABOUT

MAJOR INITIATIVES

RESEARCH & OUTPUTS

LEARN

NEWS & EVENTS

JOB

CONTACT US

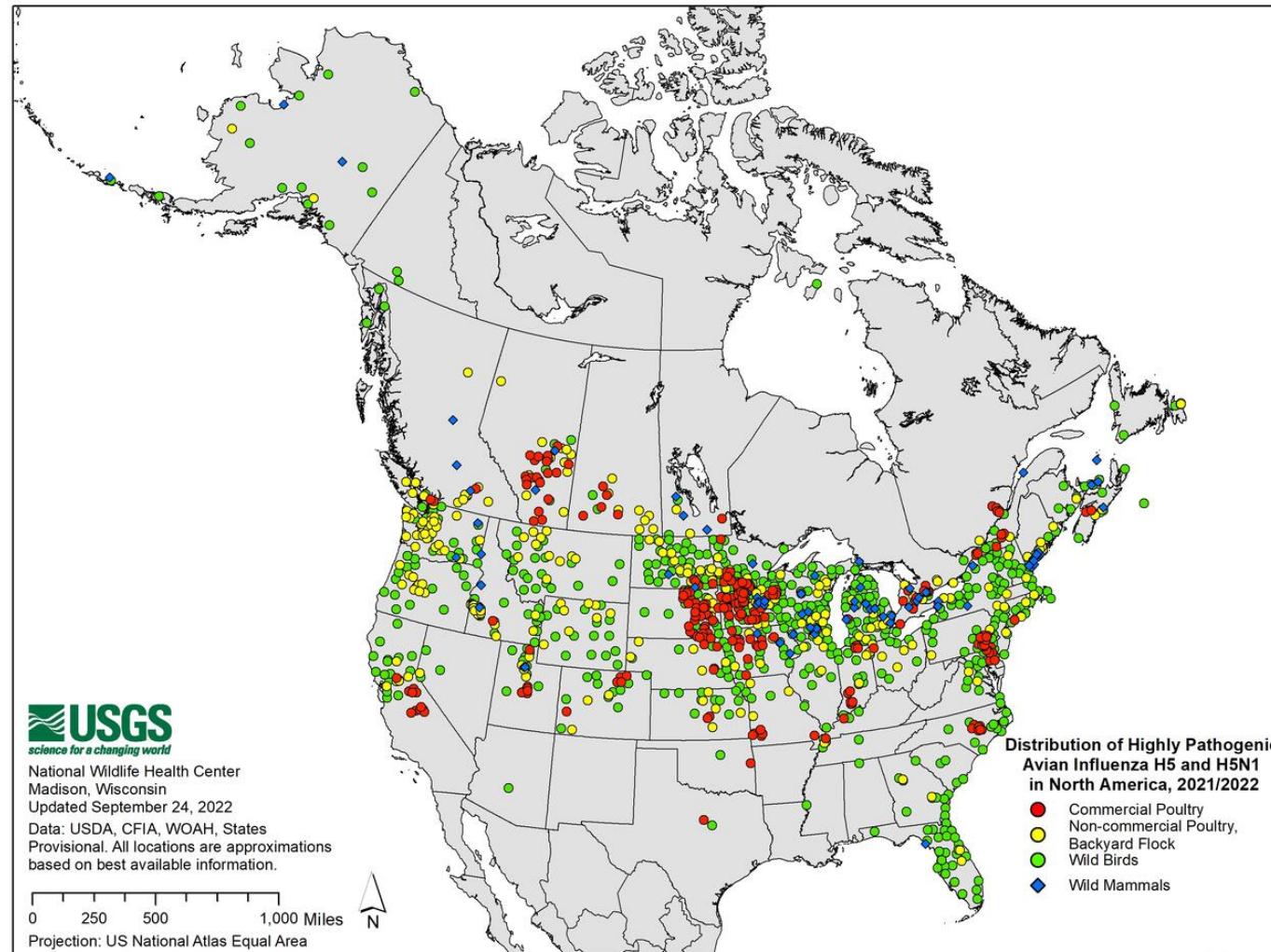
FR

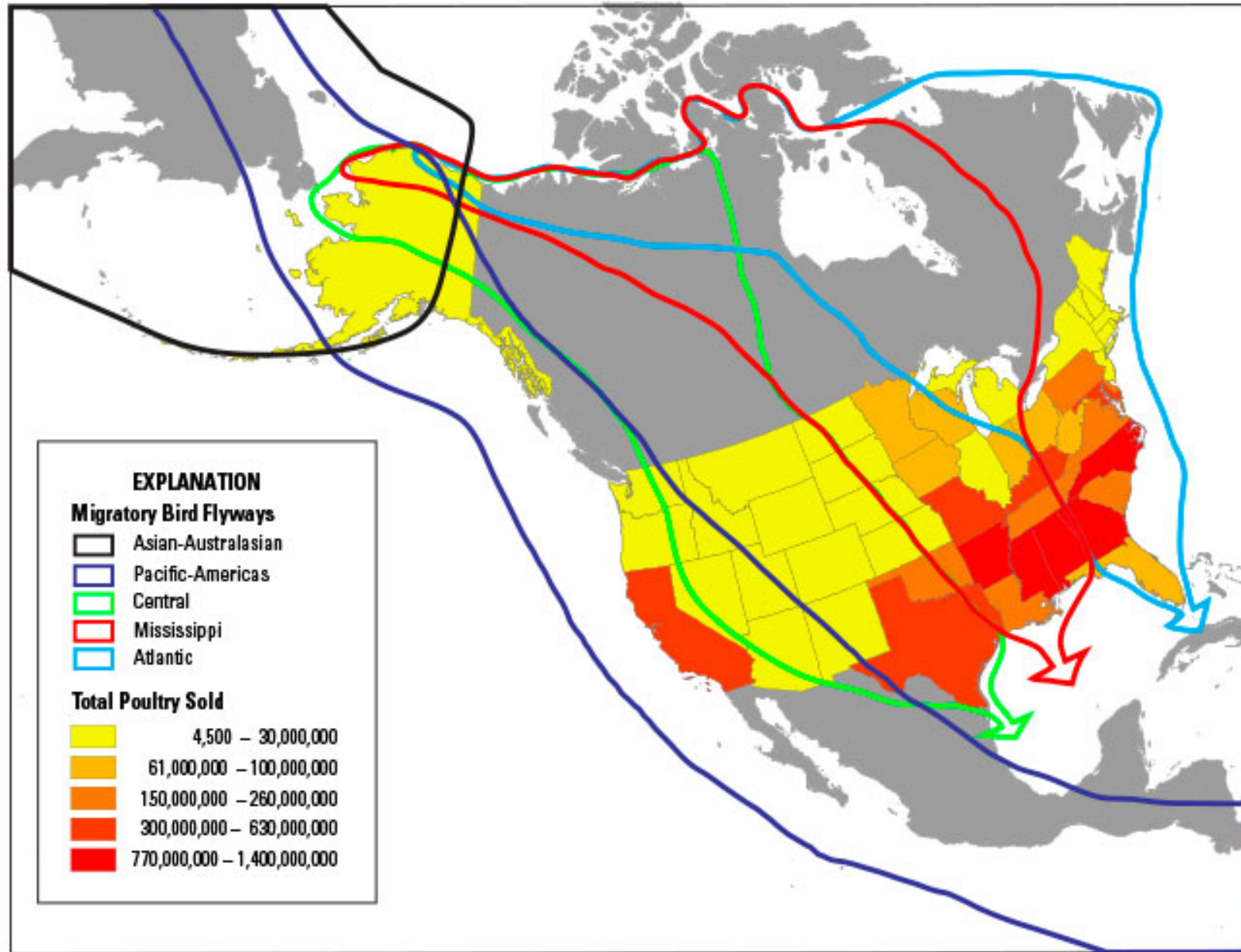


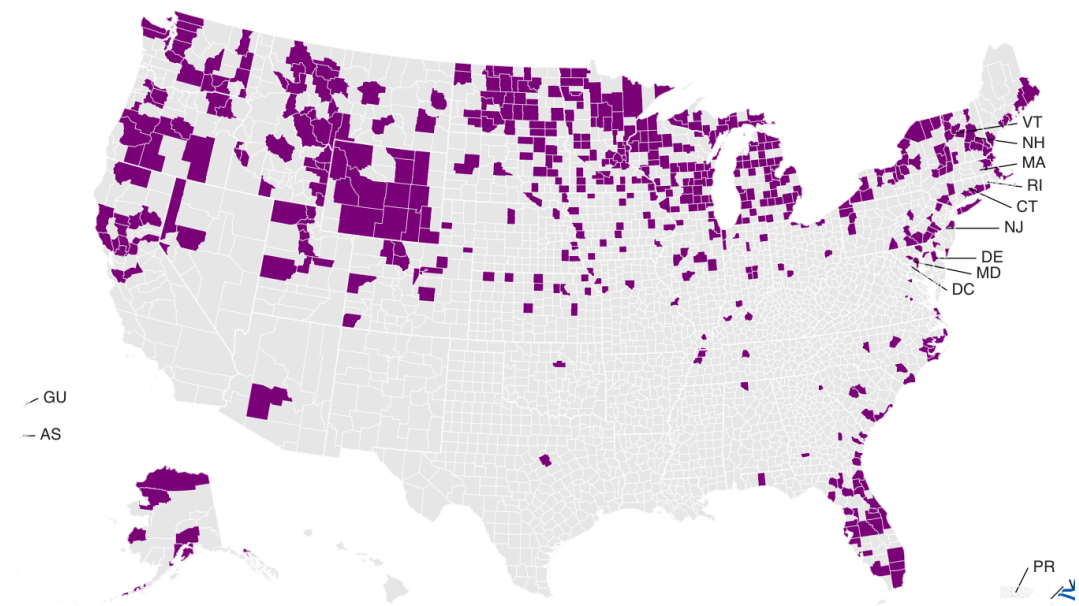
Zoonotic Characteristics of Monkeypox: Living Evidence Profile

<https://covarnet.ca/zoonotic-characteristics-of-monkeypox-living-evidence-profile/>

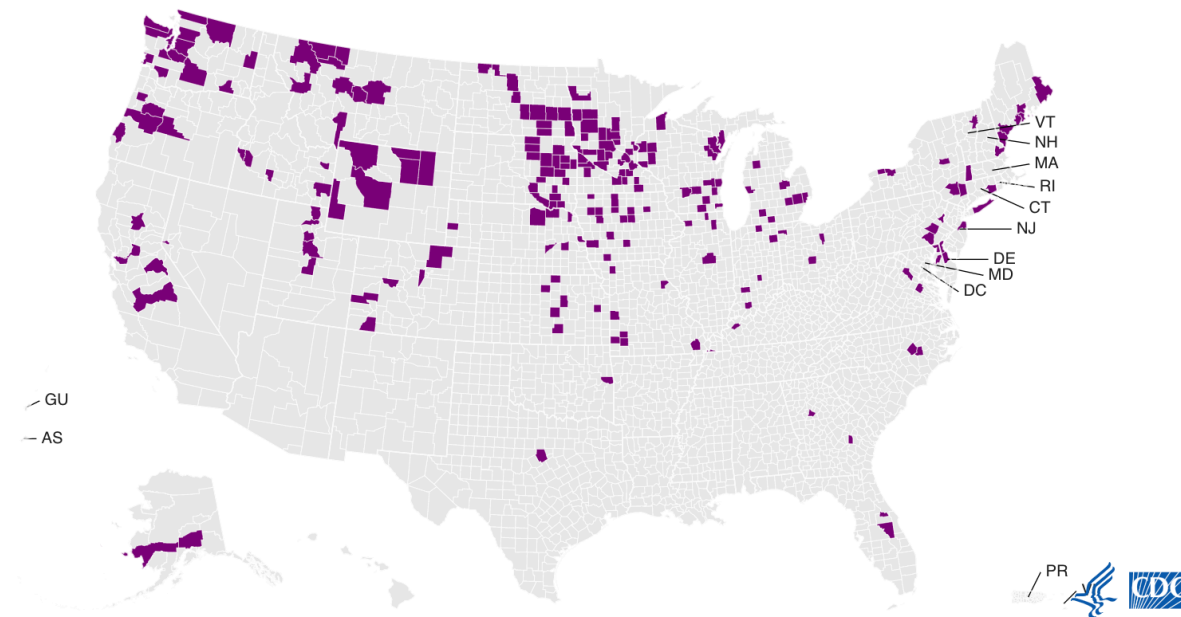
H5N1 highly pathogenic avian influenza (HPAI)







Wild birds



Poultry



Wild Birds

Wild Birds Detected

2,470

as of 09/21/2022 | [Full Report >](#)

States with Bird Flu in Wild Birds

46



Poultry

Poultry Affected

45,136,054

as of 09/21/2022 | [Full Report >](#)

States with Poultry Outbreaks

40



Humans

Reported Human Cases in the U.S.

1

as of 04/28/2022 | [Full Report >](#)

States with Reported Case(s)

1



News / Local News



Wild fox kits from St. Marys first mammals in Canada diagnosed with bird flu

Two unwell fox kits discovered in St. Marys this month are the first mammals in Canada to be diagnosed with H5N1, the highly pathogenic avian influenza virus currently threatening the country's poultry farms.

Bird Flu Found in Dolphin in Florida and Porpoise in Sweden

The findings represent the first time a highly pathogenic form of the virus, which has devastated bird populations this year, has been detected in cetaceans.

The avian and mammalian host range of highly pathogenic avian H5N1 influenza

Bryan S. Kaplan and Richard J. Webby*

Division of Virology, Department of Infectious Diseases, St. Jude Children's Research Hospital, Memphis, TN, USA

Human Health Risk

- Currently, very limited
- But
 - Recombination is occurring
 - Human flu season creates increased risks

Shelter Considerations

- Highest risk situations
 - Sick poultry
 - Other sick birds
 - Healthy birds
- Implications of a positive result on birds in a shelter
- Transmission of influenza within a shelter
 - Birds
 - Mammals
 - Humans

General Influenza Infection Control

- Identify potentially infected birds **before they enter the shelter**
 - Triage outside, elsewhere to avoid potential exposure of resident animals
 - Non-specific disease
 - Respiratory disease
 - Neurological disease
- Isolation of new avian admissions
- Isolation and testing of birds with potential AI
- Good use of routine infection control practices

Zoonotic SARS-CoV-2 from a cat

Suspected Cat-to-Human Transmission of SARS-CoV-2, Thailand, July–September 2021

Thanit Sila, Jutapoln Sunghan, Wison Laochareonsuk, Smonrapat Surasombatpattana,
Chanon Kongkamol, Thammasin Ingviya, Pisud Siripaitoon, Narongdet Kositpantawong,
Siripen Kanchanasuwan, Thanaporn Hortiwakul, Boonsri Charernmak,
Ozioma Forstinus Nwabor, Kachornsakdi Silpapojakul, Sarunyou Chusri

A veterinarian in Thailand was diagnosed with COVID-19 after being sneezed on by an infected cat owned by an infected patient. Genetic study supported the hypothesis of SARS-CoV-2 transmission from the owner to the cat, and then from the cat to the veterinarian.

old previously healthy female veterinarian who lived alone in a dormitory on campus visited the hospital of Prince of Songkla University, located in Hatyai District, Songkhla Province, with a history of fever, clear nasal discharge, and productive cough of 2 days' du-

- Humans pose much greater risk than animals but zoonotic transmission is possible
- Need to consider shelter restrictions in the context of other SARS-CoV-2 control activities, and situational risk of SARS-CoV-2 exposure
- When PPE is indicated, it needs to be used properly

Canine influenza

LOCAL NEWS

**As numbers increase around US,
Central Georgia veterinarians warn
pet owners of canine influenza**
