



PROCYON WILDLIFE

WORKING TO PRESERVE ONTARIO WILDLIFE IN THEIR NATURAL HABITAT

Squirrel Poxvirus

What Is Squirrel Poxvirus? There are two forms of squirrel poxvirus.

1. Squirrel poxvirus: This virus is a fatal disease in red squirrels in UK and Ireland. It is carried by grey squirrels, which rarely die from the disease but can spread it to red squirrels. It involves internal organs, causing lethargy, weakness, and often leading to death.

2. Squirrel Fibroma poxvirus: This is a condition of squirrel pox caused by a different virus. It is an infectious disease affecting wild squirrels, particularly Eastern grey squirrels and, less commonly, red squirrels in Ontario. This virus is a Leporipoxvirus, similar in family to myxomatosis in rabbits. The virus primarily causes cutaneous (skin) wart-like lesions, which may vary in size and severity. This version is most common in North America; squirrels develop growths or nodules but often remain bright, active, and able to recover. This strain is usually much less severe and often non-fatal. While squirrel fibroma pox can be alarming due to the appearance of lesions, not all forms are fatal, and proper rehabilitation protocols can significantly improve outcomes.

This is an overview of Squirrel Fibroma Poxvirus disease, transmission risks, clinical presentation, recommended care, and biosecurity measures for rehabilitators.

Transmission - Squirrel fibroma pox spreads primarily through:

- Direct contact—grooming, fighting, mating
- Environmental contamination—shared feeders, nest sites, branches, surfaces
- Vector transmission—mosquitoes, fleas, mites may play a role
- Direct animal-to-animal contact and contaminated fomites pose the greatest risk.

Important: There is no evidence that squirrel fibroma pox poses a risk to humans, domestic pets, or other wildlife species in Ontario.

Clinical Signs (Squirrel fibroma poxvirus) - Squirrels may present with:

- Smooth or crusted nodules, usually on:
 - Face
 - Eyelids
 - Ears
 - Limbs
 - Genitals
 - Underarms or groin
 - Swelling around eyes
 - Secondary bacterial infections
 - Broken or ulcerated lesions

Many affected squirrels remain alert, active, and well-nourished despite visible growths.

Diagnosis - Based on:

- Physical presentation
- Growth characteristics
- Clinical history
- Rule-out of other causes such as abscesses, tumors, or trauma

Lab confirmation is possible through biopsy or PCR, but often unnecessary unless the case is severe or atypical.

Treatment & Care Protocols - There is no antiviral cure, but supportive care can yield excellent outcomes.

1. Quarantine

- Intake squirrels displaying pox-like lesions must be placed in strict isolation (minimum 21 days – up to 4 months).
- Designated pox enclosures must be clearly labeled.

2. Supportive Medical Care

- Wound management:
- Clean lesion margins with diluted chlorhexidine or saline.
- Apply topical antibiotic ointment if ulcerated.
- Antibiotics may be prescribed when secondary infection is suspected.
- TMS immediately for min 3 weeks

Other options: Cod-liver oil, Sublimed Sulfur, Colloid Silver

- Pain management as needed (per veterinarian direction).
- Ensure adequate hydration and nutrition; squirrels with facial lesions may require assisted feeding.

3. Environmental Care

- Keep enclosures:
- Warm
- Clean and dry
- With minimal stress
- Use disposable bedding or bedding that can be washed at high heat.

4. Monitoring - Many squirrels show regression of lesions within 4–8 weeks.

- Track progression of:
- Lesion size
- Body weight
- Mobility
- Eating and drinking habits

5. Release Criteria - A squirrel is eligible for release when:

- Lesions have fully healed or decreased to negligible size
- No open sores or risk of infection
- The squirrel demonstrates full mobility and climbing ability
- Energy, weight, and behavior are normal

Biosecurity & Volunteer Guidelines - To prevent onsite spread:

Personal Protective Equipment (PPE)

- Gloves must be worn at all times when handling affected animals.
- Change gloves between individuals, even within the same room.
- Use gowns or coveralls in pox isolation rooms.

Sanitization

- Disinfect surfaces using a disinfectant (Rescue/Prevail recommended).
- Launder towels and bedding on high heat cycles.
- Dispose of waste in sealed bags.

Movement Control

- Volunteers working in pox isolation must:
- Follow directional flow (healthy → quarantine → pox room).
- Avoid returning to healthy rooms afterward without full decontamination.

Outdoor Enclosure Protocol

- Animals recovering from pox should not enter the main outdoor enclosures until lesions are healed.
- Avoid cross-contamination by sanitizing tools, gloves, and carriers between uses.

Prevention Tips for the Public (For Outreach Materials):

- Clean backyard squirrel feeders weekly with a bleach solution.
- Space feeders far apart to reduce crowding.
- Remove feeders temporarily if sick squirrels are observed.
- Provide natural food sources (trees, shrubs) instead of relying on feeders.
- Avoid handling wildlife directly—call a rehab centre instead.

Prognosis

The prognosis for the North American strain of squirrel fibroma poxvirus is generally good, especially in cases limited to skin lesions. With proper veterinary support, most squirrels:

- Heal fully
- Regain normal function
- Can be safely released

Conclusion

Squirrel fibroma poxvirus can be intimidating due to its appearance, but with appropriate isolation, supportive care, and vigilant biosecurity, affected squirrels often make successful recoveries. By following the guidelines above, you can ensure safe, effective, and compassionate care for squirrels while protecting other animals in the facility.

Article on Wildlife diseases:

Poxvirus Infection in an American Red Squirrel (*Tamiasciurus hudsonicus*) from Northwestern Canada

There are two recognized poxviruses that are associated with disease in tree squirrels: squirrel fibroma poxvirus (SQFV), *Leporipoxvirus*, which affects eastern grey squirrels (*Sciurus carolinensis*) in eastern North America, and squirrel poxvirus (SQPV), a member of a newly identified poxvirus genus, which affects European red squirrels (*Sciurus vulgaris*) in the United Kingdom. In August 2008, a cutaneous poxvirus-associated disease was identified in a North American red squirrel (*Tamiasciurus hudsonicus*) from the Yukon Territory, Canada. The gross and microscopic appearance of the skin lesions was more consistent with SQPV than SQFV, and electron microscopy revealed poxvirions only within epithelial cells. Polymerase chain reaction (PCR) was used to identify poxvirus core protein encoding DNA in skin samples, and phylogenetic analysis showed that the inferred amino acid sequence was distinct from all other poxvirus species for which the core protein gene has been sequenced, including those of the genus *Leporipoxvirus*. Although the core protein sequence of SQPV was not available, comparison of the constructed phylogenetic tree to other published trees, based on major outer envelope proteins, revealed that the identified sequence occupies a position similar to SQPV in terms of its relationship to other poxviruses. However, PCR primers designed to amplify gene sequences encoding the SQPV major envelope protein and RNA polymerase did not amplify any sequences from infected tissues. These findings suggest that the virus present in this squirrel is a novel poxvirus of North American red squirrels. To our knowledge, this is the first case of poxvirus infection in Canadian squirrels outside of Ontario.