

LYME (and other) Tick Borne Diseases

2026

A growing public health crisis

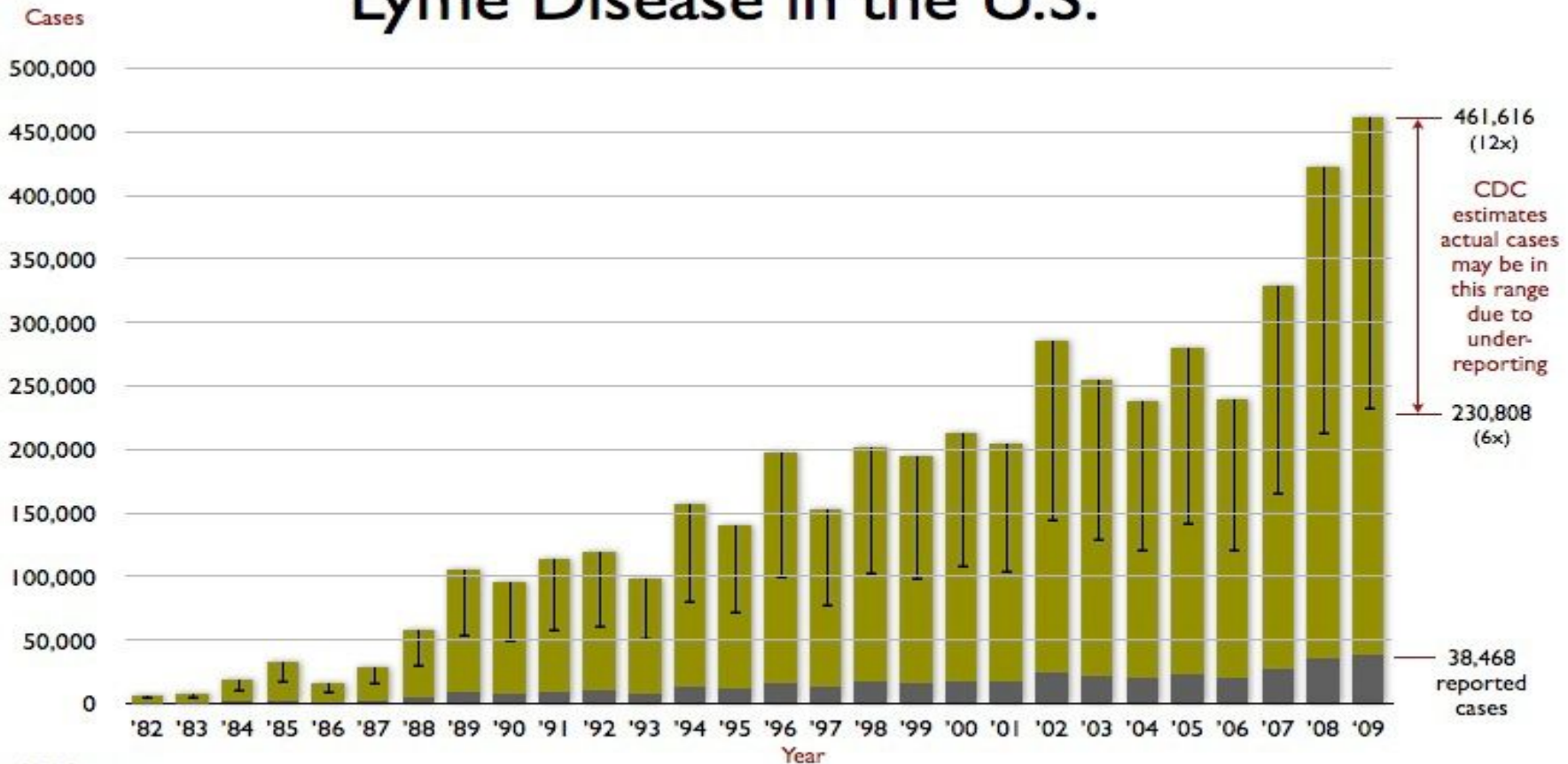
- wide spread--- ticks in 50 states
- massive under-reporting
- under-treated
- under-researched
- under-understood
- Lyme Loonies ridiculed

Scope of the problem

Over 400,000 new cases
this year

Over 2,000,000 cases (est.)
of chronic Lyme in US

Lyme Disease in the U.S.



CDC Sources

1995-2009: http://www.cdc.gov/incidod/dvbid/lyme/ld_rptdLymeCasesbyState.htm

1982-1994: <http://www.cdc.gov/mmwr/PDF/wk/mm4523.pdf>

Cases are "under-reported by 6- to 12-fold": <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5317a4.htm>

CDC 2008/9 totals include both confirmed & probable cases: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5831a5.htm>

Open Eye Pictures Jan 2011
<http://www.underourskin.com>

Reported Lyme Disease Cases in 1996 and 2013

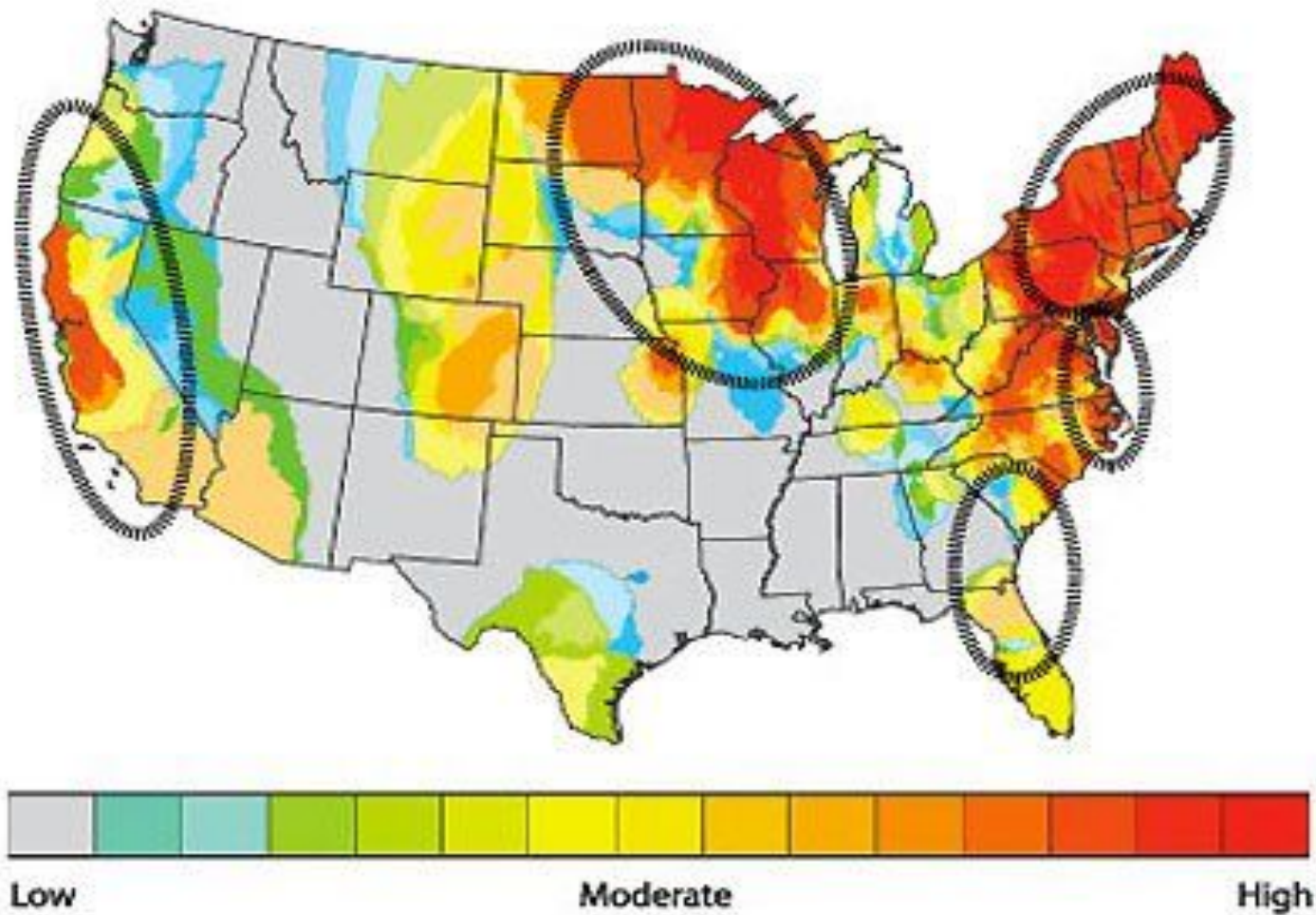


1996



2013

CAPC Forecast: Severity for Lyme Disease



The Enemy

black-legged, or deer, tick
(*Ixodes scapularis*)

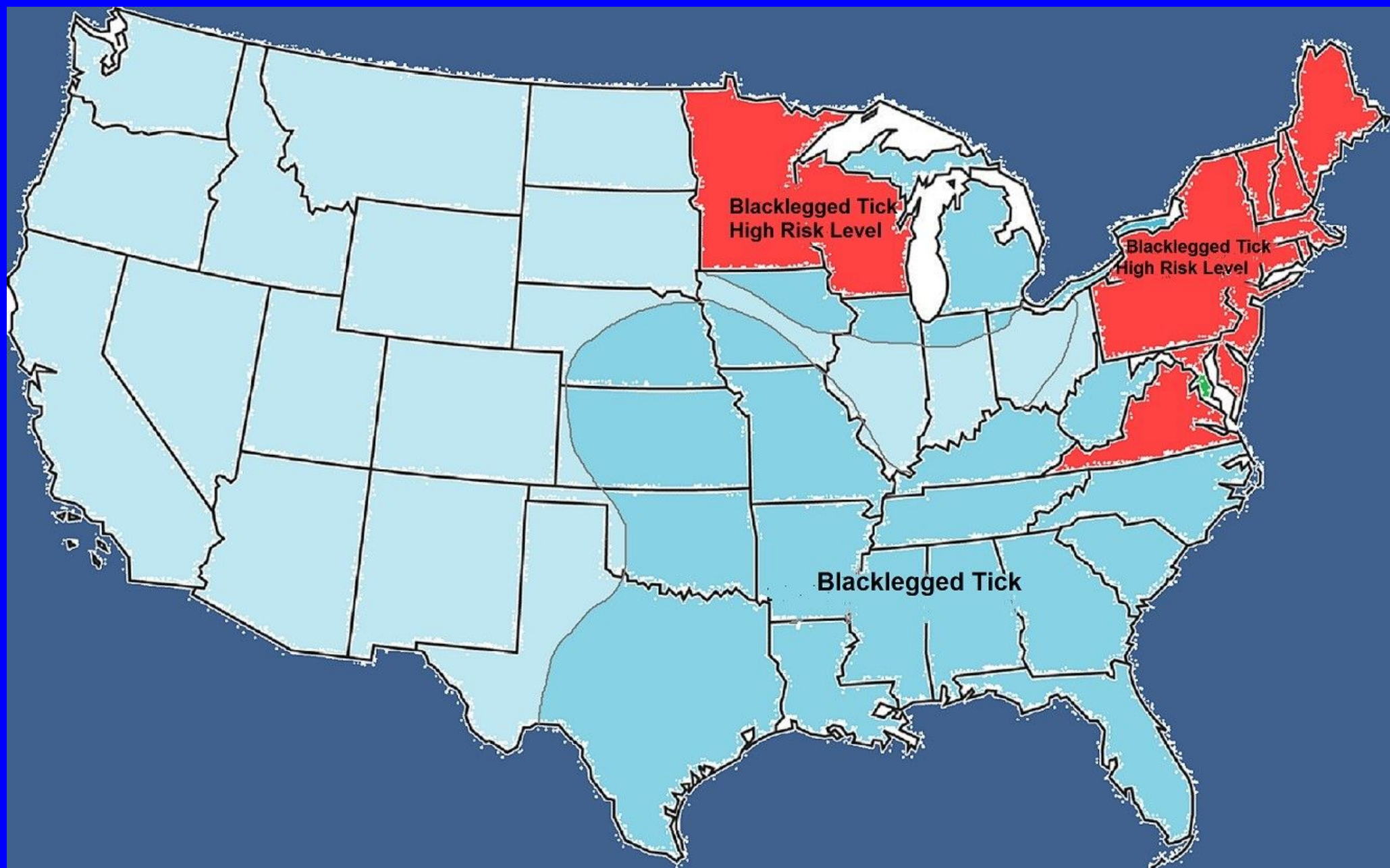


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Ticks

- 800 species of ticks
- All may carry some disease
 - (lyme, erlichiosis, RMSF, powassan virus), anaplasmosis
- Active over 45 F degrees
- Food source- blood
- Very tough



Infected or Uninfected Adult Female
Ixodes scapularis

Uninfected
Eggs

Uninfected
Larvae

1st Blood Meal

3rd Blood Meal
Adult Mating

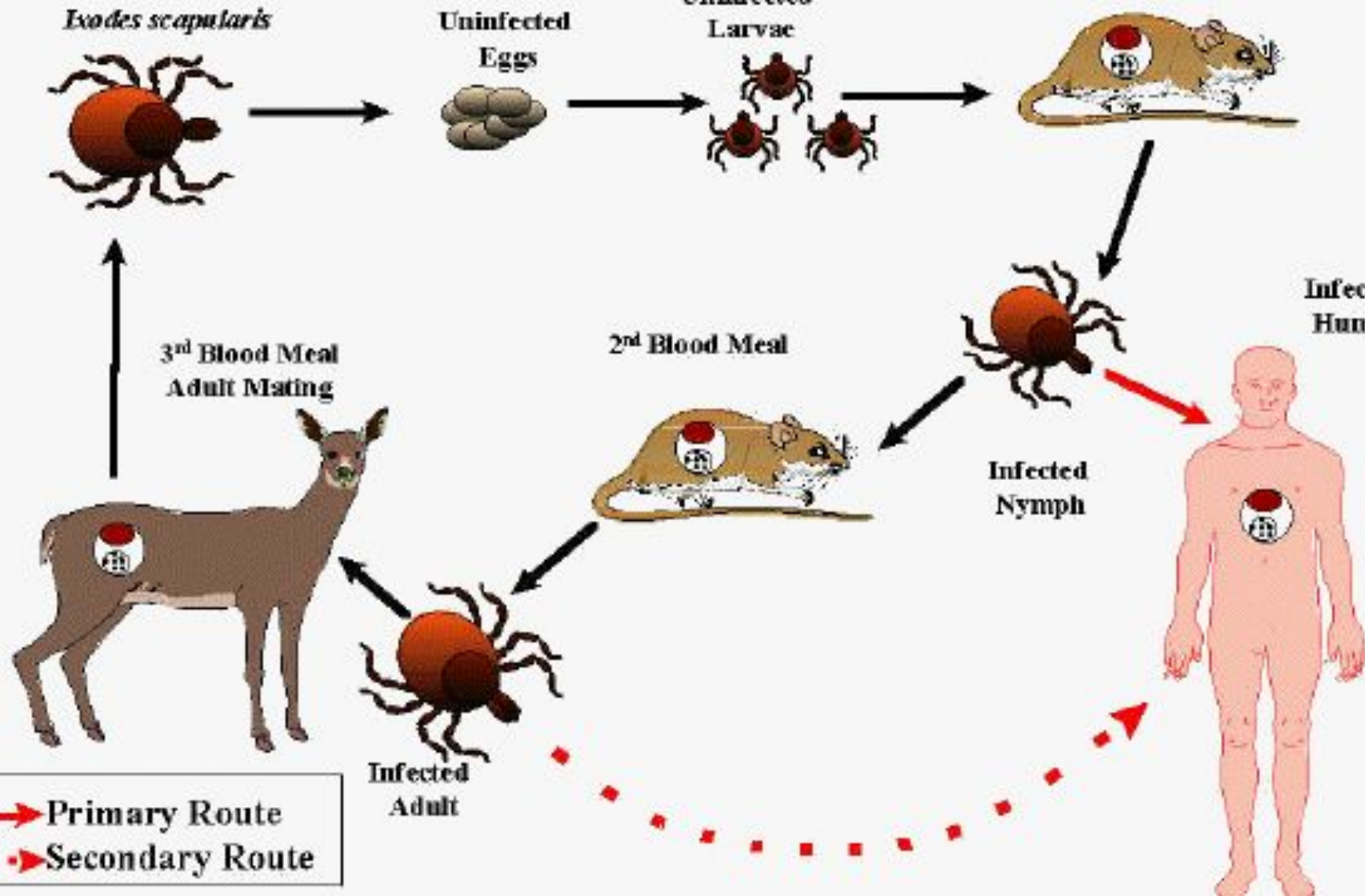
2nd Blood Meal

Infected
Human

Infected
Nymph

Infected
Adult

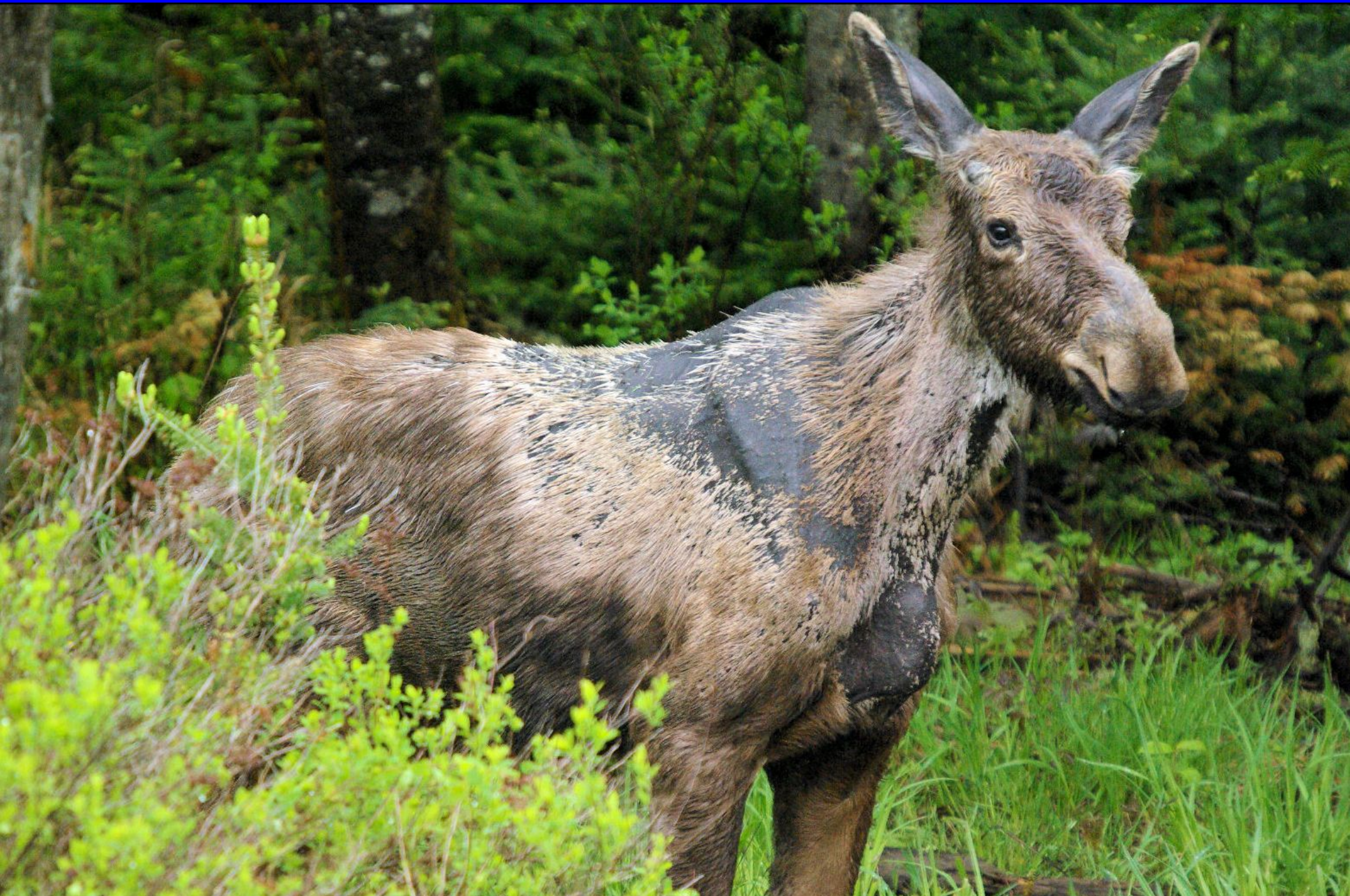
→ Primary Route
... Secondary Route







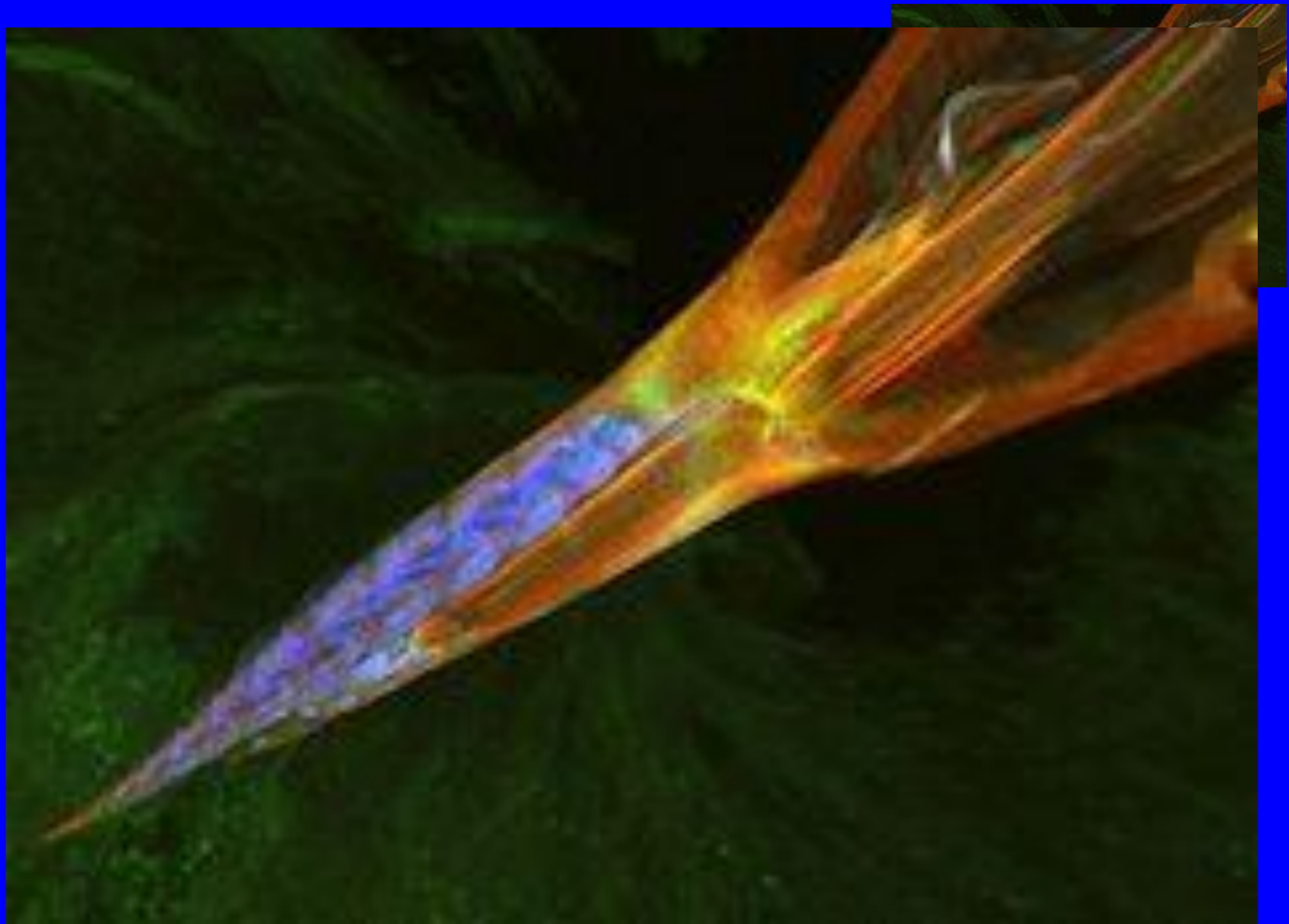


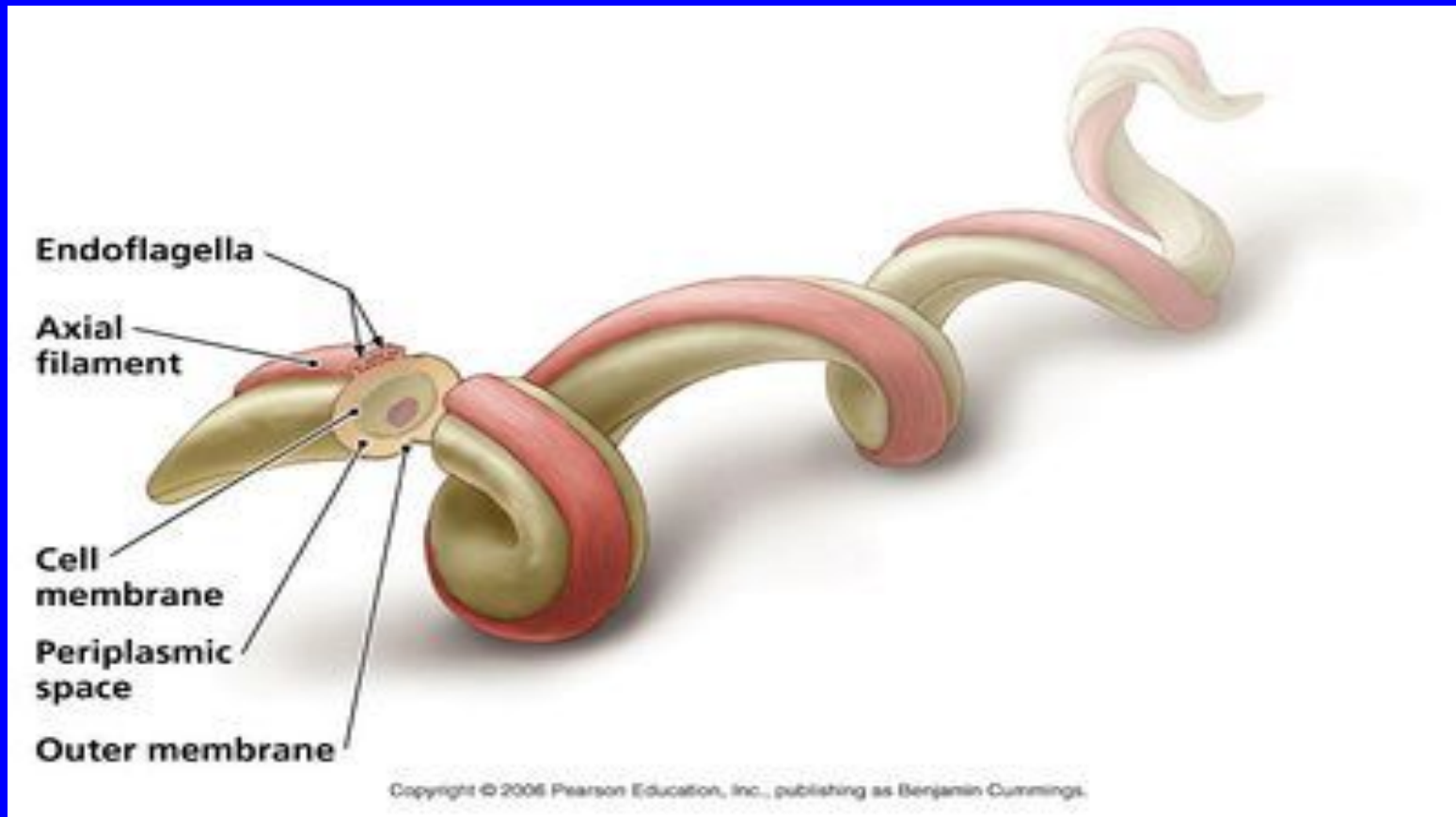


Blacklegged Tick (*Ixodes scapularis*)









Borrelia Burgdorferi

Diagnosis

- Exposure
- Flu in a non-flu time of year
- Unusual fatigue
- Target rash (60% of cases)
- Foggy thinking/headaches
- Aching joints
- Some fever
- Lab tests-unreliable, 40% false negatives in acute Lyme Disease



Blistering Lesions



Uniformly Red Lesions



**Erythema migrans
can present itself in
many different forms**



Disseminated Lesions



Blue-Red Lesions



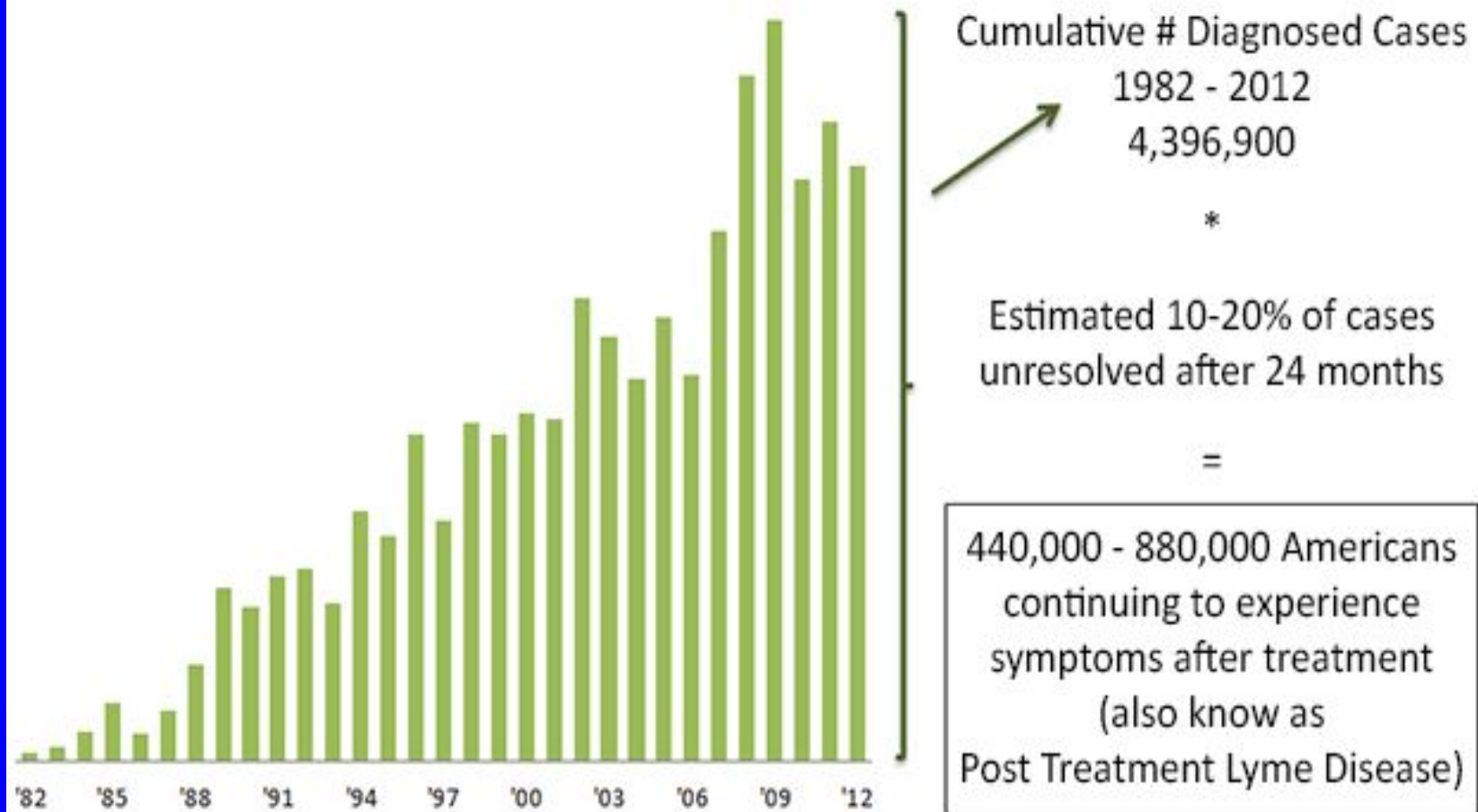
Bullseye (Target)/ Central Clearing Lesions

- Goal- slow the symptoms but primarily to prevent Post Treatment or Chronic Lyme Disease (CLD)
- Early Treatment—a must
- A Clinical diagnosis-do not wait for lab tests
- Doxycycline 100mg twice a day for 3to4 weeks other antibiotics are less effective

Chronic Lyme Disease

- Very hard (maybe impossible to treat)
- The reason for aggressive, early, treatment
- May ruin your life- arthritis, neural problems, cognitive changes, cardiac dysfunction

Estimated Cases of Post Treatment Lyme Disease in the US



“Cures “ for Chronic Lyme

- deny it exists
- various chemotherapy protocols
- multiple courses of antibiotics
- Hyperbaric Oxygen therapy

“Cures”-continued

- mis-diagnosis (most common)
- Rampant Quackery-a huge potential market (2-4million patients)

Prevention---the best medicine

Prevention

- Limit exposure/ frequent mowing
- Limited spraying in small areas
- Outdoor clothing—long pants
- Treat shoes and clothing with Permethrin
- Showering and Inspection-especially children
- Awareness

**Which
animals
are best
at tick
control?**



**COMMON
SENSE
HOME**

*Using sound judgment
to be more self-reliant*

commonsensehome.com/natural-tick-repellents/





PERMETHRIN-the wonder chemical

- A derivative of Chrysanthemum extract (ancient use)
- Neurotoxic to Ticks
- Not suitable for wide spread spraying-toxic to honeybees and fish
- FDA approved for human food sources (cows)
- Does not taint venison
- No stain on clothes-3-4 washings
- Not for use on skin
- Inexpensive



\$10.00

PERMETHRIN

TICK REPELLENT

REPELS & KILLS TICKS
AND MOSQUITOES

PROTECTS FOR 2 WEEKS
WASHES OFF AFTER APPLICATION
NO STAINING

**A TREATMENT FOR CLOTHING
DO NOT APPLY TO SKIN**

ACTIVE INGREDIENT: Permethrin
0.5% (5.0 g/kg) (0.5% w/w)
INERT INGREDIENTS: 99.5% (99.5 g/kg)
TOTAL: 100% (100 g/kg)

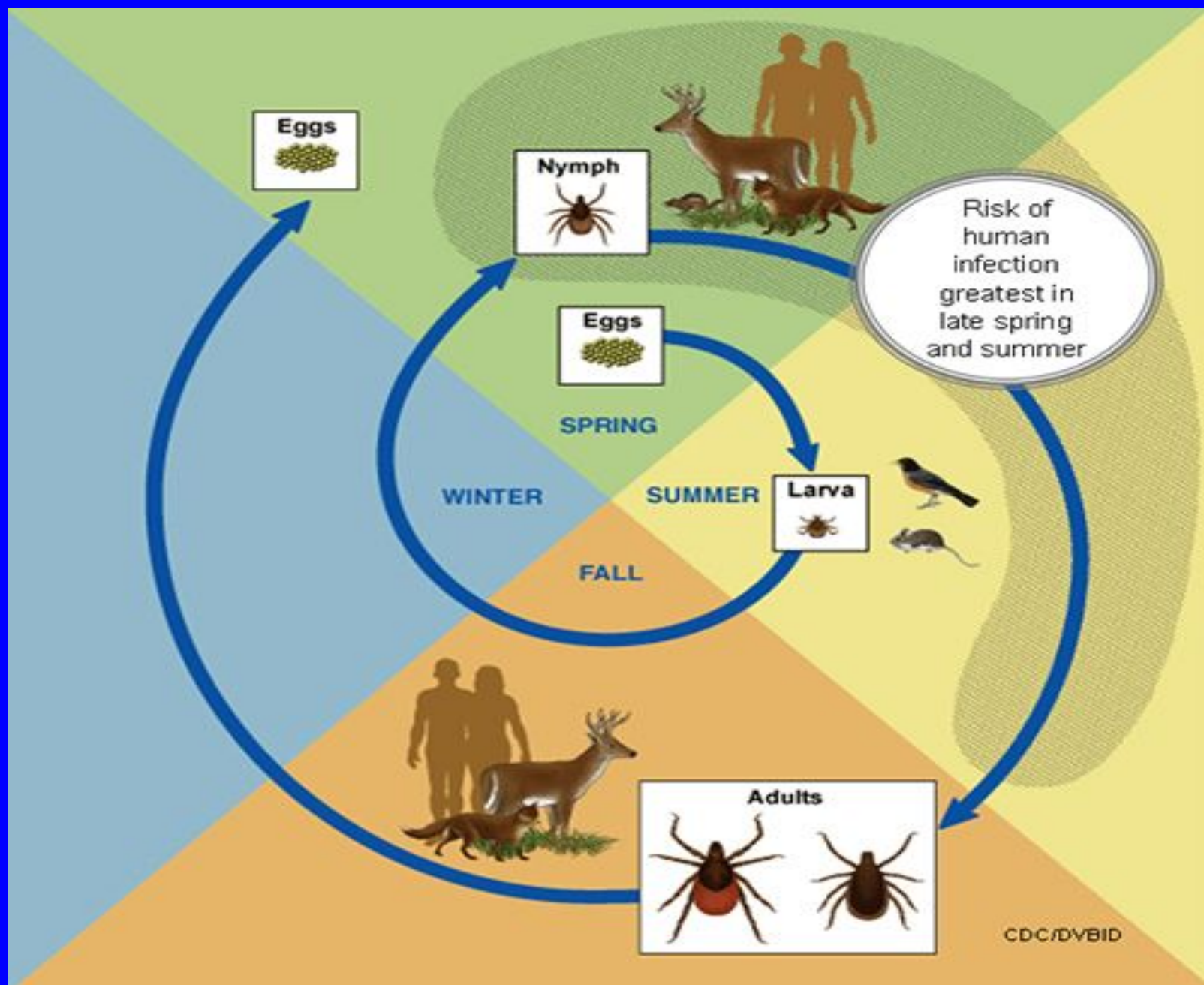
KEEP OUT OF REACH OF CHILDREN
CAUTION

For Full Label See Additional Precautions
Net Contents: 4 oz.

Community wide prevention

- Spraying- not suitable due to toxicity
- Damminix Tick Tubes
- Four Poster System
- Culling the deer herd

Break the Life Cycle



Damminix Tick Tube

- Permethrin based, Biodegradable
- Must be replaced twice a year
- Recommended at 48/acre—we would need thousands each year'
- Manpower intensive/ relatively expensive





Natural

Tick & Lyme Disease
Prevention



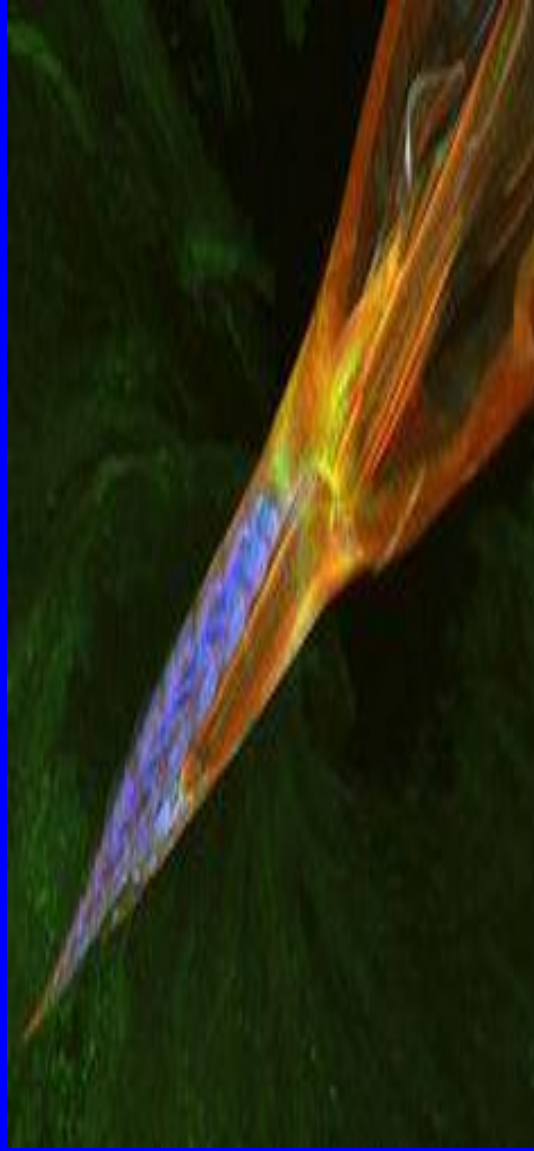


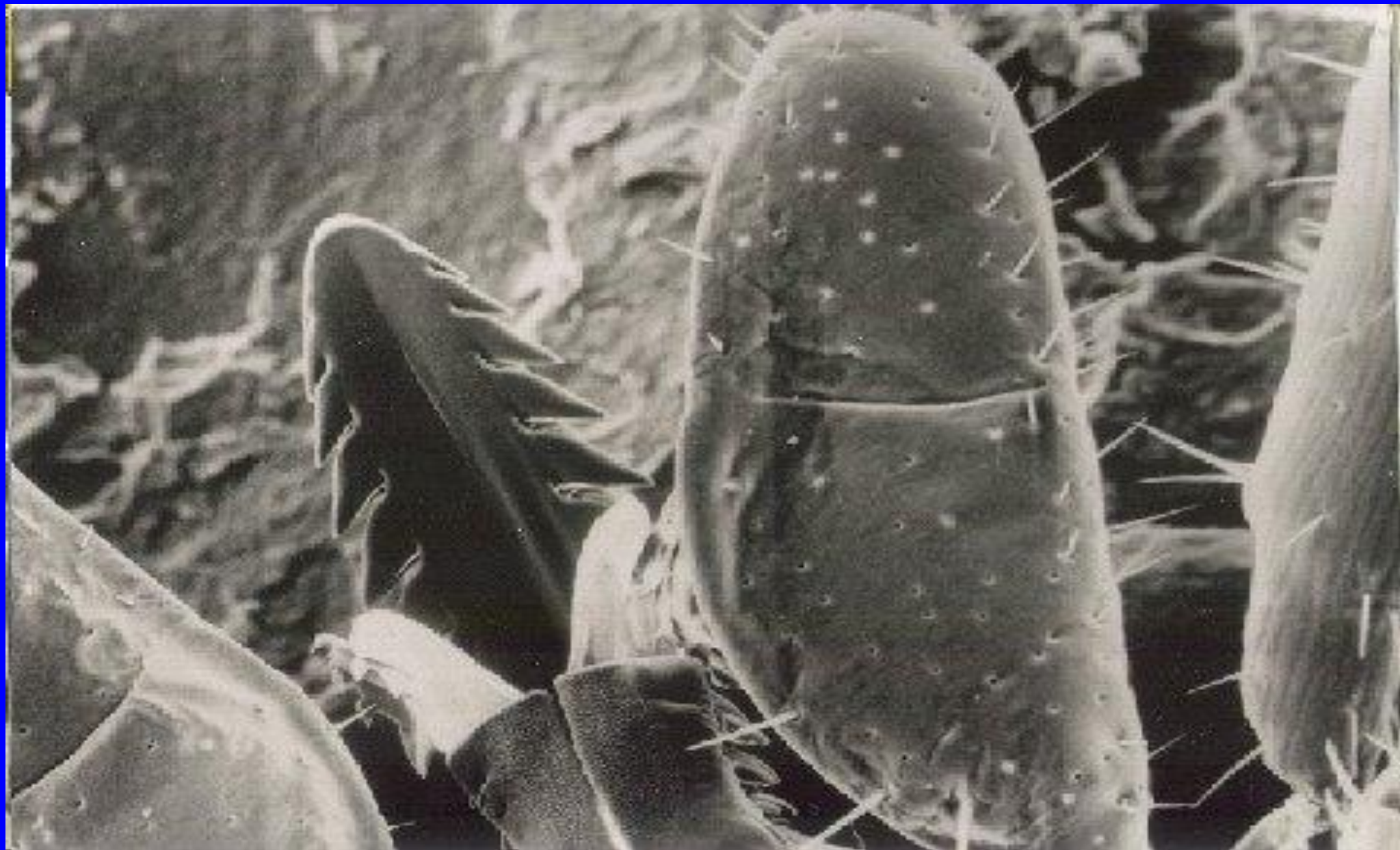




Be Tick *Aware*

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Four Poster System

- Proven system-Shelter Island and elsewhere
- Relatively high initial cost but much less later
- Needs community support manpower/ volunteers
- Environmentally safe
- DNR permission needed due to state law



