

# A citizen science surveillance toolkit for collecting ticks on birds

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First Nations Health Authority  
Health through wellness



BC Centre for Disease Control

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## Why monitor ticks on birds?

Ticks can transmit pathogens known to cause disease in humans and animals, including Lyme disease, babesiosis, and anaplasmosis. The distribution and presence of ticks and tick-borne diseases is sensitive to changing climate. Migratory birds carrying ticks can further facilitate the introduction and spread of ticks and tick-borne diseases as they are capable of transporting ticks across long distances (Figure 1).

This toolkit is meant to be used at established and permitted bird banding stations and aims to:

- 1) demonstrate how a bird banding station is an efficient and effective method to gather valuable data on ticks and tick-borne pathogens;
- 2) describe materials and methods to collect and identify ticks from birds; and
- 3) support the expansion of tick surveillance to the approximately [1,100 bird banders](#) across Canada.



Figure 1: Captured bird with engorged tick on its neck.

## What can bird banding stations do to help?

Collecting ticks from birds in the environment requires unique expertise in addition to a lot of time and resources. Partnering with bird banders and banding stations to integrate tick collection with existing workflows can allow us to collect more ticks and gain greater insight into the tick species and the pathogens they carry. Searching birds, removing any ticks, and preparing the tick for identification only takes a few minutes.

### How to collect ticks off birds

#### You will need:

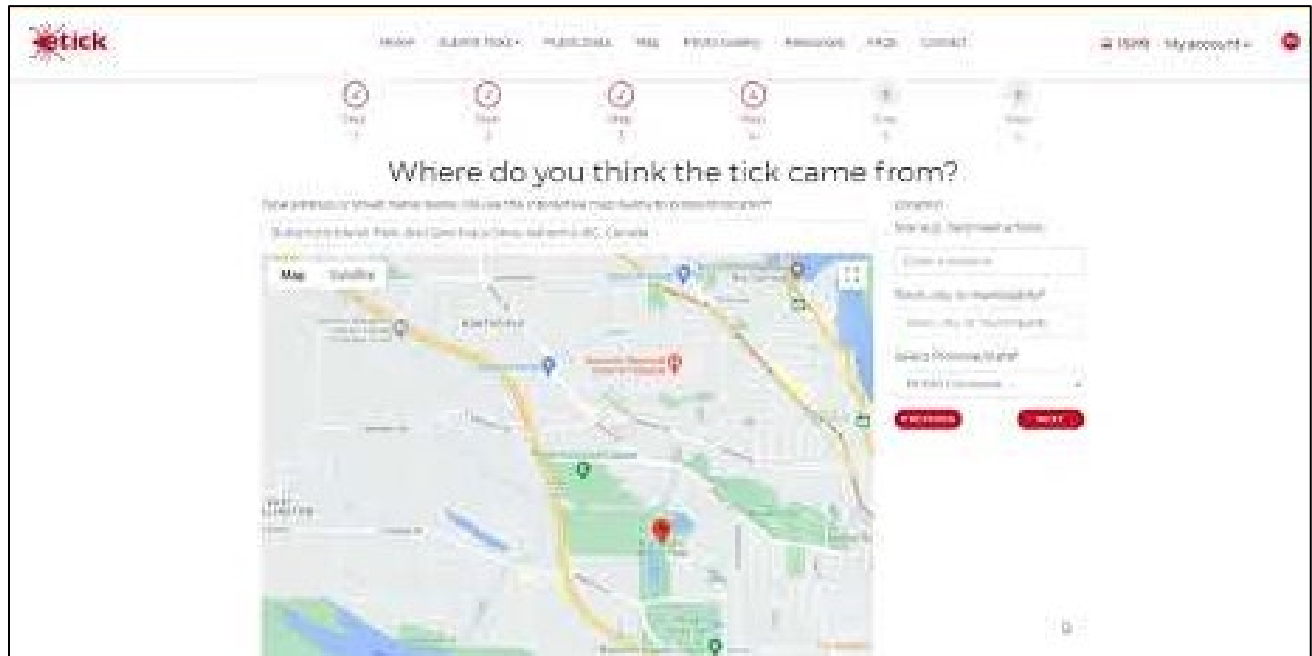
- Fine-tipped tweezers
- 1-2 mL vials or other sealable collection containers filled with no more than 1.5mL of 70% ethanol to ensure the ticks remain viable (alternatively, ticks can be stored in the freezer)
- Fine tip permanent marker and labels for tubes (return address labels or white masking tape work well)
- Data collection sheet (see Appendix 1)

- 1 Carefully search captured birds for ticks (especially the eyes, beaks, and legs).
- 2 Remove identified ticks using fine-tipped tweezers. Gently grasp the tick as close to the skin of the bird as possible and slowly pull the tick away from the skin at a 90° angle.
- 3 Place the tick into a vial with 70% ethanol or into a freezer within 24 hours of removal. All ticks collected from the same bird can be placed in the same vial.
- 4 Label the vial with a unique identifier.

## What do I do with collected ticks?

### Submitting photos of ticks to eTick.ca

Pictures of Ticks removed off birds can be submitted to eTick for free tick identification. eTick is a free public platform for image-based tick identification in Canada. Visit [www.eticck.ca](http://www.eticck.ca) to learn more about eTick and be sure to review the photographic guide to take proper photos for submission. Instructions can be found in the video below:



You can click the play button above or follow the link below:

<https://www.youtube.com/watch?v=DS8Q77SO1Mk>

### Submitting ticks for pathogen testing

Across Canada there are several different laboratories that may accept ticks for identification and pathogen testing. Reach out to your local health unit or provincial/territorial health services to learn more. Another possible route is in partnership with universities in your province or across the country.

## Possible funding sources

Below is a list of potential organizations that you might approach to fund a project like this.

- Local health authority
- Local city or municipality
- The Public Health Agency of Canada
- Local Universities or Colleges
- Wildlife or nature organizations
  - Ducks Unlimited
  - Nature trust of Canada
  - Parks Canada

## Tick bite prevention

While collecting birds, it is important to be informed about measures for avoiding tick bites and proper tick removal should you encounter an attached tick. For information on tick bite prevention please visit:

<https://www.canada.ca/en/public-health/services/diseases/lyme-disease/prevention-lyme-disease.html>

<https://healthcanadaexperiences.ca/programs/ticks-tick-bite-prevention/>

## Infographic to promote collection of ticks from birds:

Below is an example of what you might use to promote the submission of ticks off birds at your local banding station.

# BIRD BANDERS

## We need your tick photos!





**Birds often carry ticks, especially ticks that attach to the skin around the eyes, bill, and head.**

People and animals have a higher risk of tick-related diseases because of climate change.

**Help the University of British Columbia and BC Centre for Disease Control track ticks** to better understand them and plan for these changes.

### How to send a tick photo?

**1 Look for ticks on birds**

How to look for ticks:



**2 Take photos of ticks**

How to take photos:



**3 Submit to eTick.ca**

Submission portal:





Financial contributions from:



For more information on ticks visit [bccdc.ca/ticks](https://bccdc.ca/ticks)

## Appendix 1

Example of data collection sheet.

Tick Sample ID	Date dd/mm/yyyy	Band Number	Bird Species ID	Station ID	Looked or Searched	Tick Location	Photos	eTick Submission ID
Example: VIU-2024-00	9/22/2024	3041-64648	swth	BUWE	looked	eye	Yes (2)	ET-12345
VIU-2024-01								
VIU-2024-02								
VIU-2024-03								
VIU-2024-04								
VIU-2024-05								
VIU-2024-06								
VIU-2024-07								
VIU-2024-08								