

New England Cottontail Tracking Field Protocol

In what kind of habitat might I find New England cottontails?

New England cottontails like very dense shrubs. Places like old fields, regenerating clearcuts, shrub dominated wetlands, powerlines, or other areas with *thicket* vegetation.

For our survey, what is considered a site?

You may have been given maps of specific areas or sites to search before conducting a survey. A site is a patch of suitable habitat that a cottontail may utilize without venturing into a wide, risky open area such as a grassy field, high traffic road, water body, or highly unsuitable vegetation (e.g. mature forest). *Fill out one survey form per site.*

What part of the site should I search and for how long?

If the site is small try to search the entire habitat. For large sites (> 8 acres), you may need to select sections that look the most promising to do your search. Weave in and out of the thickets to cover most of the target area. Try to survey at least 20% of the patch, focusing on areas of highest habitat quality consisting of dense vegetative cover and especially directed toward favored browse species (e.g. blackberry, raspberry, dewberry, blueberry, willows, aspen, maples, viburnums). Also, utilize any prior knowledge of the landowner of rabbit activity on the site if available. Searches can vary in time based on patch size, but generally 20-40 minutes is enough time.

When is the best time to survey for cottontails?

Conduct your surveys during the day and anytime there is snow on the ground. However, restrict searches to at least 36 hours, but preferably no more than 4 days, after the most recent snowfall to maximize accumulation of fresh tracks and pellets. Also, if there have been high winds (>25 mph), rabbit sign may be obscured, so wait at least 36 hours to allow rabbit sign to accumulate again.

What are the FIVE most important things to do BEFORE going into the field?

1. Get **PERMISSION** from the landowner.
Refer to the talking points if needed, and know where to direct the landowner to more information if they have questions.
2. Bring a good **MAP** of the site that shows hazards like water, or roads.
3. Bring a **GPS** or other device to collect latitude and longitude. Use Google Earth to get site coordinates if you don't have a GPS.
4. Bring all the **EQUIPMENT** on the list (below).
5. **KNOW** the difference between cottontail sign and other similar species.

What equipment and materials do I need to conduct these surveys?

We can provide some of the equipment and materials below.

- Map of site
- Survey forms and clipboard
- Laminated tracking card
- Camera and charged battery
- GPS device (if available)
- Sterile vials
- Disposable latex gloves
- Ziploc bags
- Pencils
- Fine point permanent marker
- Ruler for measuring tracks and to provide scale in photos
- Watch/timekeeping device (optional)
- Warm, sturdy clothing
- Waterproof footwear
- Snowshoes and poles (optional)
- Cooler with snow or ice packs to keep vials with pellets frozen until they can be placed in a freezer.

If I don't find cottontail sign at a site on my first visit, should I try to resurvey the site to confirm cottontail presence or absence?

Refer to the *Repeat NEC Survey Flow Chart* (below) to determine the ideal # of times to resurvey, based on the survey conditions of your initial visit. Make sure the landowner is okay with you returning to the site.

How do I find cottontails, and how do I fill out the survey form?

The instructions below will walk you through the major sections on the survey form. Please try to fill out every line of data.

Use the laminated **New England Cottontail Tracking Cards as a field guide.**

SURVEY INFORMATION, SITE INFORMATION, WEATHER and TIME

1. These sections should be self-explanatory. Record *End time* and *Total time* after you are done searching your site. Under "Type of snow," *melted out* means that the snow has been freezing and thawing creating an uneven surface and unclear track impressions.

TRACKS and BROWSE

2. Turn on your GPS unit, if you have one, and enable *route tracking*. Begin your search in areas where rabbits are most likely to be found. Remember that they like it dense and shrubby, so look under shrubs! Don't be afraid to wade through thickets. The harder it is to walk through, the more suitable it is for rabbits. **Use the tracking cards as a field guide** and look for tracks, cut twigs, and pellets.

3. If you find **tracks**, try to identify them and circle one of the options on the survey form. Take pictures of the tracks with an object next to it for scale, like a small ruler or the ruler on the edge of the laminated tracking cards. Take measurements of the tracks and fill out the required fields on the survey form.
4. If you find **twigs** clipped at a sharp 45° angle, indicate this on your survey form and identify the plant if you can.

PELLET INFORMATION

5. If you do not find pellets, circle ‘no’ under the pellet information section and skip to the photos section.
6. If you find pellets, please collect them only if you are fairly certain that your tracks look like they belong to cottontail, the habitat looks suitable for cottontails, and the browse marks look like they were caused by cottontails. If in doubt, or tracks are indistinguishable but pellets are present, collect the pellets anyway, but please takes pictures of the indistinguishable tracks, the habitat, and any browse marks.
7. Collect multiple vials of pellets at a site if you are fairly confident you have observed cottontail sign. Separate each vial collection by at least 30 meters.
8. For each vial, try to collect pellets from a single set of tracks, or a 10 x 10 ft.² area or smaller to minimize the number of individuals represented. Ideally, we want the pellets of one individual rabbit per vial.
9. Using a new clean pair of disposable sterile latex gloves, place 4-10 pellets in one vial. You can collect fewer than 4 pellets per vial, if necessary, but a minimum of 2 is ideal. Try to keep snow out of the vial, but avoid rubbing the pellet as it may remove DNA. To avoid contamination, do not use your hands or reuse gloves to pick up the pellets.
10. Using a permanent marker, label each vial with the date, survey site (Unit ID), your initials, and the GPS coordinates of where the pellets were found. Each vial will already have a label with a unique number. GPS coordinates must be in decimal degrees, WGS84 format, and *must be at least 5 digits* to accurately relocate the collection site. Partially fill a Ziploc bag with snow and place the pellet vial in the bag to keep it frozen. Also record all of this information on your survey form. There are multiple lines in case you collect more than one vial.

PHOTOS

11. Take photos of tracks, browse, and habitat using the guidance provided on the tracking cards. Before each set of photos at a site, take a photo of a piece of paper or the survey data sheet with the date, site name, and GPS coordinates clearly written in marker so you will know where the photos were taken. Use the macro function if needed to ensure the details are readable. Record the file name of each photo on the survey form. If you need additional space, use the back of the survey form.

ADDITIONAL INFORMATION, COMMENTS

12. Record any additional information or comments in these sections.
13. If you used a GPS unit with route tracking, at the end of your survey, stop recording and save your route. Record the route number on the survey form.
14. Draw your approximate walking route on the map that you brought into the field, or shade in the area you covered, even if you recorded your route on the GPS.

What should I do after I finish searching the site and filling out my survey form?

Return any vials with pellets in them to a cooler half full of snow upon returning to your vehicle. When you get back home, deposit the vials in a freezer as soon as possible to preserve DNA. Gather the following items and submit in person to an office below, even if you didn’t find rabbits:

- Survey form with map of search area. Include hand drawn search area and GPS output of route.
- Photos (bring on a flash drive, or bring your camera’s computer connector and we can download directly from the camera).
- Labeled pellet vials, if collected. These must be kept frozen.

Cory Stearns Maine Dept of Inland Fisheries and Wildlife Region A 358 Shaker Rd. Gray, ME 04039 (207) 657-2345	Mao Lin or Bob Houston USFWS Gulf of Maine Coastal Program 4R Fundy Road Falmouth, ME 04105 (207) 781-8364	Lindsey Fenderson or Lynn Wolfe USFWS Rachel Carson NWR 321 Port Road Wells, ME 04090 (207) 646-9226
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For additional forms or more information about this survey effort, please contact Mao Lin via phone or email (mao_lin@fws.gov). For questions about the New England cottontail restoration effort in Maine, please contact Kelly Boland via phone (207-646-9226) or email (kelly_boland@fws.gov).

Repeat NEC Survey Flow Chart – MAINE ONLY

A Guide to Determine the Number of Surveys Needed to Maximize Cottontail Detection Probability

