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Massachusetts

The newsletter for owners of land protected by a Watershed Preservation Restriction (WPR) held by the Department of Conservation and Recreation (DCR), Division of Water Supply Protection.

Winter 2018

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Voles!
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Watershed Currents

In Search of the Little Critters

A Meadow Jumping Mouse trapped by DCR DWSP Natural Resources staff to help determine the biodiversity of the watershed forest. The mouse was released after data was collected. *Photo: DCR Staff*

Every species, no matter how small, plays a critical role within an ecosystem. When asked to name a mammal that lives in the woods, the big ones such as bear, moose or deer often come to mind first for most of us. But, we are surrounded by so many little critters that also play a critical role in maintaining a healthy ecosystem. There are approximately 60 species of mammals that live in the New England region and many of them are small mammals (under 11 pounds).

Various techniques are used by researchers to sample for species diversity. The Natural Resource staff has been conductiing a Long-Term Wildlife Resource Monitoring Program within the Wachusett Reservoir Watershed since 2001. The program focuses on collecting biological information from many different wildlife species within a variety of habitats throughout the Wachusett Reservoir Watershed. The data collected is used to help aid in land management decisions.

Twenty plots are sampled throughout the watershed. Ground cover, canopy cover, and understory vegetation were recorded initially. As the program progressed, bird surveys, bat surveys, pitfall arrays (to sample for reptiles and amphibians), and small mammal trapping surveys began and continue presently. These surveys reveal species richness and species abundance before, during, and after land management practices.

Sherman live-traps, which have been used in research for decades, are the chosen method used to sample for small mammals in the program. White-footed mice, Red-backed Voles, a variety of Shrews, Southern Flying Squirrels, and Jumping Mice are some of the critters that have been captured over the years during the small mammal trapping season.

One of the first projects I took part in when I started at DCR in 2005 was the Long-term monitoring program. In August of each year, for approximately five weeks, the Natural Resource wildlife staff sets traps at a select number of plots. We begin on a Monday by lugging buckets filled with traps into the woods. Seventy-

Small Mammal Trapping, continued on Page 3

Meet the Staff

Management Changes

A few shifts this winter

Sooner or later we all move on or move up. DCR's Division of Water Supply Protection must endure and celebrate changes in staffing, especially as the moves proves beneficial for those that are making transitions.

Jonathan Yeo (profiled in ***Watershed Currents Summer 2013***) became the DWSP Director in 2005, and his able leadership for the past 13 years will be missed. His long career in resource management includes stints as a planner with DCR's Office of Water Resources, followed by time as the Communications Director for the Mass Water Resources Authority, before coming to DCR. Jonathan has been tapped by the City of Newton to become their Chief Operating Officer, a job that brings him back to his hometown with a three block commute. His city has long benefitted from his civic involvement on multiple fronts, and he embraced the opportunity to expand his contributions to his community. He says he will miss us, and we know it's true!

Dan Clark (profiled in ***Watershed Currents Winter 2013***) has taken a promotion after 23 years encamped in DWSP's West Boylston headquarters. He is now the new Regional Director of the Quabbin/Ware section of this incomparable watershed system. Dan is replacing Bill Pula who took a well- deserved retirement last year. ***The Telegram and Gazette published a nice article*** in February introducing Dan to the region.

Dan ably carried out his duties as the Division's Wildlife Biologist from 1995 to 2007 before becoming the Natural Resources Director until his recent move to Belchertown. During this time, he earned a PhD in Wildlife Ecology from UMass Amherst. Those of us on the Natural Resources staff will miss his daily direction, but take solace that he is still with us in an expanded role.

Currently John Scannell, the Regional Director for the Wachusett/Sudbury Region is the Acting DWSP Director, and Ken MacKenzie is the Acting Natural Resources Director. DCR is working towards filling these positions with permanent placements; we will keep you posted. *~Jim French*

The Subnivean Zone

Life under the snowpack

Where do the small mammals such as meadow voles, mice, and chipmunks go through the long snowy winter? We often think they hibernate. However, in fact, many will have periods of sleep but still be fairly active throughout the cold season. They move around eating seeds, insects, bark and plants. Some even create food caches, or places they have hidden a supply of food, which they will visit during these months.

So where are these critters? In the subnivean zone! The word subnivean is from the Latin *sub* for under, and *nives* for snow. It is the area under the snow layer, or snowpack, against the ground. Vegetation, overhanging rocks, logs, sticks, and other debris prevent the snow from landing on the ground, leaving gaps and spaces for the animals to hide in. Small mammals also will burrow through the snow and underlying vegetation creating tunnels. These tunnels connect them to their food caches, latrines, and burrows to sleep in. In these created spaces, sublimation also occurs. This is when the snow closest to the ground transforms into moist gas, rises, then turns to ice, forming a crust against the inside roof of the created tunnels, burrows, and gaps. The effect is similar to that of the inside of an igloo. In the subnivean zone, the temperatures are relatively stable around 32 degrees, protecting the small mammals from the harsh outside elements as they move about the network of tunnels, burrows, food caches and latrines.

Protection from the world above is not complete, though. Owls and other predators such as foxes, bobcats and coyotes can find small animals in the subnivean zone. With their acute hearing, they pin-

Small Mammal Trapping - from Page 1

four traps (64 ground and 10 tree traps) are baited with a peanut and oatmeal mixture and set along two lines. Each line has 16 stations that are flagged and numbered.

The excitement begins on day two when we return to check the traps. Who has been lured into the traps by the smell of peanut butter and oats? Upon finding a closed trap, we put on gloves and slowly open the trap to allow the animal to jump into a tall bucket or pillow case. The species is identified and then gently handled to check sex and clip a small section of fur by the rump. Clipping the fur helps to identify an animal previously captured, which in turn provides a more accurate population estimation. It takes a little practice to hold on to the animals as they can easily escape by bouncing off a researcher's arm or even a shoulder before they take a flying leap to freedom!

It is exciting to see an old gravel pit with little wildlife activity transition into a thriving meadow filled with Jumping Mice, Meadow Voles and Cottontails. Or, an even-aged overgrown forest with little species diversity transformed into an early-successional forest abundant with wildlife.

~Jillian Whitney

A Southern Flying Squirrel is ready to take off after its close encounter with a DWSP trap! *Photo: DCR Staff*

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point where the small animals are and pounce or fly down through the snow from above. Predation can also occur within the zone; long thin weasels such as the ermine will travel thought the network of tunnels looking for a meal.

The next time you are walking around outdoors after a snow, look for the entrances to the subnivean zone which appear as burrow holes in the snow. Another great time to search for evidence of this near-invisible world is after a thaw. You can often see this network of tunnels as the snow around them melts.

~ Ginny Dautreuil

A couple of voles at the entrance to their subnivean tunnels (far left), which can be seen as a map of routes when there is minimal snow cover. (near left).

A deer mouse peeks out from below the snow pack (bottom right), always ready to dart back to safety from predators like this fox that is ready to pounce to get a winter's meal.

Photos: Neal Herbert, National Park Service (fox); Tomi Tapio K (vole); Ginny Dautreuil (tunnels); National Park Service (deer mouse)

The Wildlife on Your Land

Was That A Mouse?

One small rodent that is adapted to tunneling around the Subnivean zone (see Page 2) during the winter months can easily be mistaken for a mouse. But, it's not a mouse at all! It's the Southern Red-backed Vole (*Myodes gapperi*) and it is found in coniferous forests and meadows throughout the Northern U.S. and Canada. They grow to be 4.5 to 6.5 inches long (head to end of tail) and get their name from the reddish band that runs along their back. Though they can easily be confused with other tiny rodents and insectivores, they have visual characteristics that separate them (see below). These voles travel under surface growth, leaf litter, fallen logs and snow and use roots, logs or tree holes as nests. Their fur color and tunneling technique help protect them from many predators such as coyote, raptors and weasels. In the winter, they rely on the subnivean layer to protect them from harsh weather conditions and to keep them out of sight from predators.

Their omnivorous diet changes by season but consists of insects, fungi, lichen, seeds, berries, and nuts. Next time you see a mouse-like critter scurrying around the woods, take a closer look...it might not be a mouse at all but a Red-backed Vole instead.

~Jillian Whitney

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