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Snowshoe Hares

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Lately a lot of foresters and forest owners have been telling me they are seeing more snowshoe hares (Lepus americanus) in the woods. Many people (myself included) enjoy seeing this charismatic hare (hares, unlike rabbits, give birth to fully furred offspring which are pretty much ready to ambulate immediately after birth). Snowshoe hares turning from brown to white is as much a part of Idaho's changing seasons as aspen and larch turning yellow. Snowshoe hares are also eaten by nearly every carnivore capable of subduing them, making them a very important part of forest ecosystems – in boreal forests some ecologists describe them as a keystone species.

Snowshoe hares produce up to 3-4 litters annually of 4-6 young, and they have a cyclical population that peaks every 9-10 years. Remarkably, this population cycle is fairly synchronized across the species' entire range. Idaho snowshoe hares tend to hit their peak more or less the same year or two that hare populations peak in Canada and Alaska. This has been a topic of active theorizing among scientists studying hares and all of the creatures that rely heavily on them for food. Populations crash due to a combination of increasing predators, decreasing food supply, and possibly some other factors scientists are still trying to figure out.

While many enjoy seeing snowshoe hares, foresters and forest owners trying to establish tree seedlings may not enjoy them as much when populations are high. Snowshoe hares consume understory vegetation in the summer, but during winter they often feed on trees. Snowshoe hares can cause extensive damage to tree seedlings, especially during peak years.

Adult snoeshoe hare (*Lepus americanus*) in winter colors.

Photo courtesy of Terry Spivey, USDA Forest Service, Bugwood.org.

Snowshoe hare damage typically takes 2 forms: 1) a clean-angled cut of seedling tops or lateral branches or 2) debarked seedlings or young saplings (stems less than 1.5 inches thick).

Photo courtesy of Brett Marshall, Sault College, Bigwood.org

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Identifying snowshoe hare damage

As with any forest health issue, whether it be insects, disease, or invasive species, the first step to addressing it is to correctly identify the culprit. Snowshoe hare damage typically takes two forms: 1) clipped seedling tops or lateral branches (snowshoe hares leave a clean angled cut) or 2) debarked seedlings or young saplings (stems less than 1.5 inches thick). Snowshoe hares can only stretch a foot or two to feed on trees. But remember, snowshoe hares are uniquely adapted to thrive in environments with lots of snow. You may see tree damage from hares perched atop a 3-4 feet of snow.

A number of other mammals can damage trees in ways superficially similar to hares. For example, deer elk and moose often clip seedling tops. Unlike rodents, they tend to leave a ragged, torn break rather than a clean cut.

Voles commonly feed on bark of young trees, especially in afforestation efforts on former crop or pasture lands. Unlike hares, they leave very smooth debarked areas and the damage is almost always close to the ground. They also leave very small tooth marks that look like scratches.

Porcupines often feed on live tree bark during the winter. The most obvious damage tends to be in the tops of sapling trees (especially ponderosa pine), but porcupines occasionally feed on seedlings as well.

In addition to feeding injury, look for hare tracks in the snow or scat (snowshoe hares leave small flattened pellets similar to their relatives) to assess whether snowshoe hares are a possible culprit for tree damage.

Silviculture for Snowshoes

One of the most common strategies to manage hares is to modify their habitat. Snowshoe hares like dense vegetation that is 3-6 feet high, for food, thermal cover and hiding from predators. Without this kind of habitat (especially over a large acreage), hares are not as likely to venture out in to the open to feed on your trees. Reducing understory vegetation mechanically, through fire, with herbicides, or some combination of these, may help create a window of time when regeneration can get large enough to be less vulnerable to the hares. Promptly burning slash piles also reduces hares' cover. Planting larger seedlings (e.g., superstock seedlings or 4-year old bare root seedlings) may also reduce browsing and trees will have more resources to overcome browse damage.

Some type of physical barrier keeping hares from getting to your trees is also a useful approach. A rabbit-proof fence is the most effective, but fences are expensive to build and maintain. Rigid plastic mesh tubes (often referred to as "vexar") staked down with the tree seedlings are more economical. These tubes also protect seedlings from deer, elk, moose, and pocket gophers (if you bury them into the soil a bit). Tubes must be well-staked and maintained – heavy snows can sometimes knock them down.

Hunting can reduce snowshoe hare populations, depending in part on your access to one or more enthusiastic beagles (renowned rabbit hounds). But hunting is unlikely to put more than a small dent in hare populations when they are at their peak. Even if you significantly reduce hares in a 10-20 acre area, they will likely be replaced by hares in nearby habitats. Remember, snowshoe hares are classified as a game animal in Idaho, so do not exceed daily or possession limits unless you get special permission from the Idaho Department of Fish and Game.

Accept Some Damage?

Snowshoe hare damage on most sites should subside once the population crashes, so one strategy is to simply ride out the population boom and replace trees as needed. You may be able to salvage some clipped trees with corrective pruning. When trees lose their tops, multiple lateral branches often compete to become the leader. This frequently produces trees with multiple tops, which are very prone to breaking out when they get older because of sharp branch angles and all the bark imbedded between the multiple tops. Going in a few years after top damage to prune out all but the best top on the tree will give the tree stronger structure. If this is done when the tree is sapling size or smaller, 20 years later you won't even be able to see the tree was ever damaged.

Snowshoe hares are a fun part of Idaho forests. If you are interested in learning more about preventing tree damage from snowshoe areas and other mammals, "eXtension," a web site that provides peer-reviewed content that is shared by most U.S. Land Grant universities has an excellent "community of practice" on the topic you can browse through at http://www.extension. org/wildlife_damage_management.