NORTHERN HARDWOOD NOTES

Rodent Influence On Regeneration

Rodents play a large but often ignored role in northern hardwood regeneration. They exert a major influence on seed supply and seedling survival.

Rodents love basswood seeds. Although basswood is the most consistent and heaviest seed producer among the hardwoods, rodents ate more than 98 percent of the basswood seeds lying on the litter in a Wisconsin study. Many of those not eaten had worm holes; seeds under the litter were generally rotten.

Rodents are partial to acorns too, but will not risk exposure to predators to collect them. Pregerminated acorns on a small scarified area in Wisconsin were not touched by rodents, while all acorns were destroyed on adjacent undisturbed litter. Both areas were under a shelterwood overstory.

White ash seed is apparently not on the list of rodent favorites. Rodents consumed all treated sugar maple and basswood seed in a direct seeding study, but left white ash seed on the same area. Earlier studies bore out this preference.

Rodents eat the seeds of most conifers in northern hardwood stands. Feeding studies showed heavy consumption of white pine, red pine, white spruce, and hemlock seeds. It is rare to see any red pine seeds on the litter surface except in cone caches and among destroyed cones under red pine stands. Balsam fir, on the other hand. showed few losses to rodents.

Rodent populations are generally more than ample to destroy most tree seeds. In British Columbia only five mice per hectare consumed 85 percent of the Douglas-fir seed within 15 days; in another study 95 percent was lost to mice in 3 days. Poison-baiting studies and observations from pothole blasting show how high rodent populations are. A Missouri study found that a single pair of white-footed mice could have 900 offspring in one year. In view of these hordes of seed eaters, what can the forest manager do to ensure regeneration?

Scarification or prescribed burning removes the cover that is essential for rodents, and the bigger the area treated, the better. (Small areas are too rapidly reinvaded by rodents for treatment to have a long-lasting effect.)

Until we develop better rodent repellents- or habitats more favorable for the predators of rodents-scarification and prescribed burning will provide the best benefits. Failing that, another way to minimize exposure to predation is to sow pregerminated seed at the beginning of the period when temperature is most favorable for germination. Forest managers, who often need several years of advance planning, haven't the luxury of waiting for good seed years and a downturn in the rodent populations.

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