

Conifer Swift Moth

Korscheltellus gracilis (Grote)

Lepidoptera: Hepialidae

Tobi, D. R.; Leonard, J. G.; Parker B. L.; Wallner, W. E. 1992. Survey methods, distribution, and seasonality of *Korscheltellus gracilis* (Lepidoptera: Hepialidae) in the Green Mountains, Vermont. *Environmental Entomology* 21: 447-452.

Objective: To develop methods for interpreting the basic biology and potential pest status of *K. gracilis*.

Abstract: The larvae of the conifer swift moth, *Korscheltellus gracilis* (Grote), feed on the roots of red spruce, *Picea rubens* Sarg., balsam fir, *Abies balsamea* (L.), and the leaf petiole bases of mountain wood fern, *Dryopteris campyloptera* Clarkson. Although this particular outbreak was found in red spruce-balsam fir stands near Camels Hump Mountain, Vermont, *K. gracilis* larvae could possibly be present in other mountain areas having the same host species. Feeding by *K. gracilis* can impair the trees' assimilation of water and nutrients, predispose roots to attack by root pathogens, reduce the regeneration potentials of red spruce and balsam fir, and cause decline or death.

This insect was found to have a two-year life cycle with greatest densities found above 885 m in elevation. Adult flight and mating occurred within a half hour before sunset and after sunrise, from late June through early August. Peak flight activity occurred during July, with the heaviest flights occurring on even numbered years. Greater numbers of *K. gracilis* were caught in Malaise traps than in 50-cm², clear plastic sticky traps placed 15 cm above the ground. However, Malaise traps were found to be too costly for widespread use.

Sampling Procedure:

Interception trap study: Use sticky board traps to sample large stands and Malaise traps for smaller units.

Sticky traps: Two types of deployment can be used: circular and transect. For circular deployment, use 50 by 50-cm clear, 2.5 mm thick Plexiglas coated with Tangle Trap (Tanglefoot, Grand Rapids, MI, USA). Suspend traps from overhanging tree limbs with nylon cord such that they are approximately 15 cm above the forest floor. Space four to eight traps 6 m from a plot center for a spacing of 14-28 m along the circumference, respectively (plot spacing in this study was at least 60 m). For transect deployment, place one or two Plexiglas sticky traps at 30 m intervals within the area to be monitored. Regardless of the deployment, traps should be in place 2-3 weeks before the initiation of

flight activity (i.e., in this study early June), and maintained until 3 weeks after the end of flight activity (i.e., late August in this study). Check all traps daily during the flight period of *K. gracilis*.

Malaise traps: Place Malaise (BioQuip, Santa Monica, CA, USA) traps approximately 15 cm above the forest floor at the base of a potential host tree. Distribute traps on a 30-m spacing to obtain a representative sample of the area in question. Check all traps daily during the flight period of *K. gracilis*.