

## **Climate Effects on the Culture and Ecology of Sugar Maple**

**Selena Ahmed** (in collaboration with PI Toni Lyn Morelli (UMass Amherst) and Investigators Joshua Rapp (Tufts), David Lutz (Dartmouth) and Ryan Huish (Hollins))

The goal of this project is to elucidate the effects that climate variation and forest management practices have on the quality of maple syrup in the Northern Forest region, and understand how these responses may translate into changes in socio-economic wellbeing with projected climate change. To achieve this goal we will accomplish four supporting objectives, namely: (1) measure the ecophysiological response of sugar maple to micro- and macro-scale climate variables through changes in sap yield, sap quality, and seed production, (2) evaluate the role of forest structure and management in the production and quality of maple syrup, (3) investigate the market issues affecting financial returns from variable quality maple syrup, and (4) connect these empirical findings between forest ecology, climate, management, and consumer preferences with down-scaled climate models to develop policy suggestions to enhance the resiliency of maple syrup production under future climate scenarios.