

Importance of Montane Forests and Snowpack as Water Resources for the Wasatch Region

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Goal

- Quantify stand-level transpiration and snowpack dynamics in montane coniferous forests along an elevation gradient in the iUTAH watersheds to determine the relative influences of temperature and snow water equivalent (SWE) on water availability for the Wasatch Range Metropolitan Area



Figure 1. Montane sap flux sites.

Research Methodology

- Install sap flow sensors at three sites along an elevation gradient to measure transpiration
- Measure snow depth and SWE at multiple locations at each site throughout the winter and snowmelt period using a Federal sampler

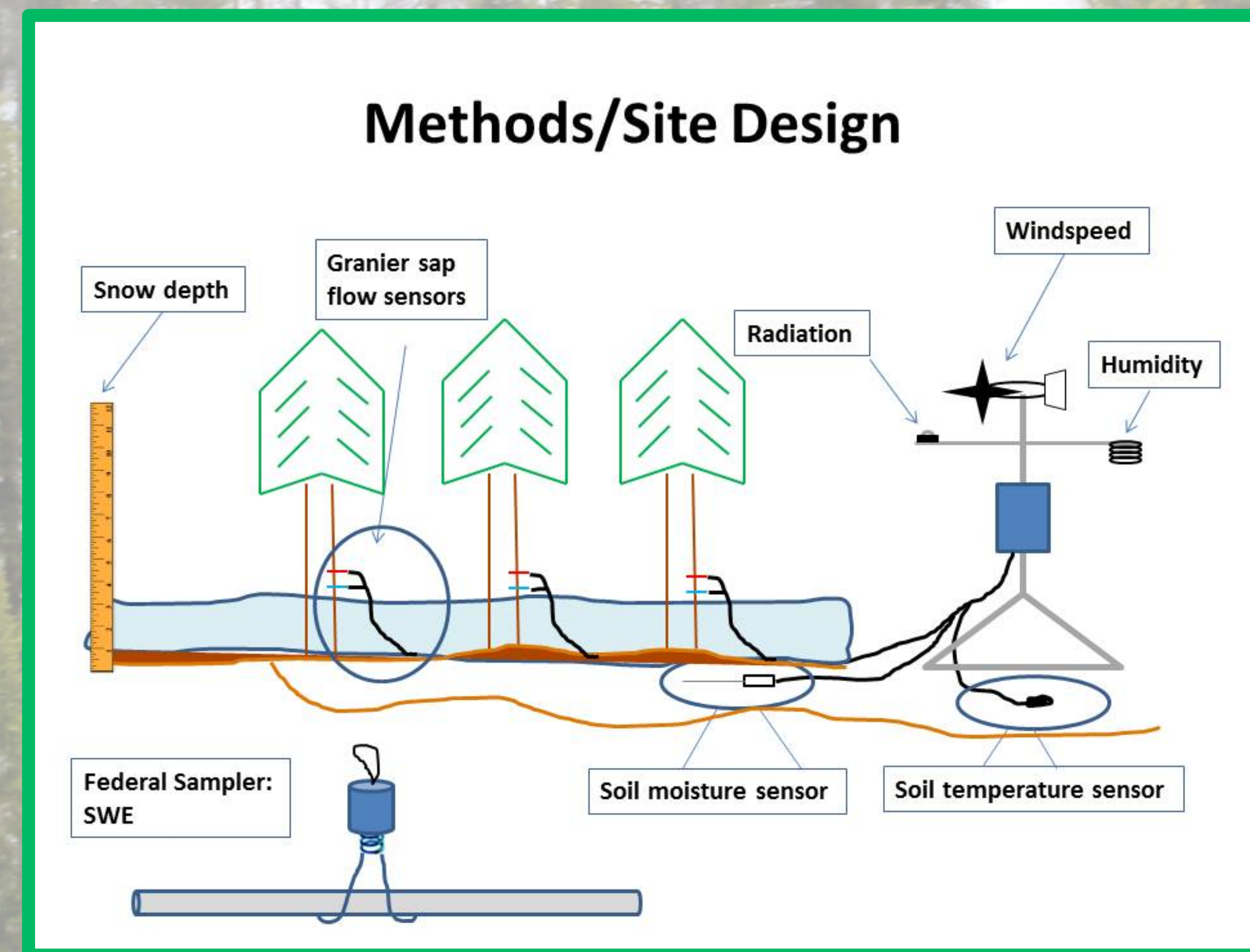


Figure 2. Sap flux instrumentation and climate stations will be installed at three sites, varying elevation, in the iUTAH watershed areas.

Impact

- Montane forest snowmelt is the primary source of water for the Wasatch Region
- It is important to assess the current water balance of the region and identify the environmental variables that influence annual variations in water availability to better predict future water resources

Predicted transpiration patterns along an elevation gradient

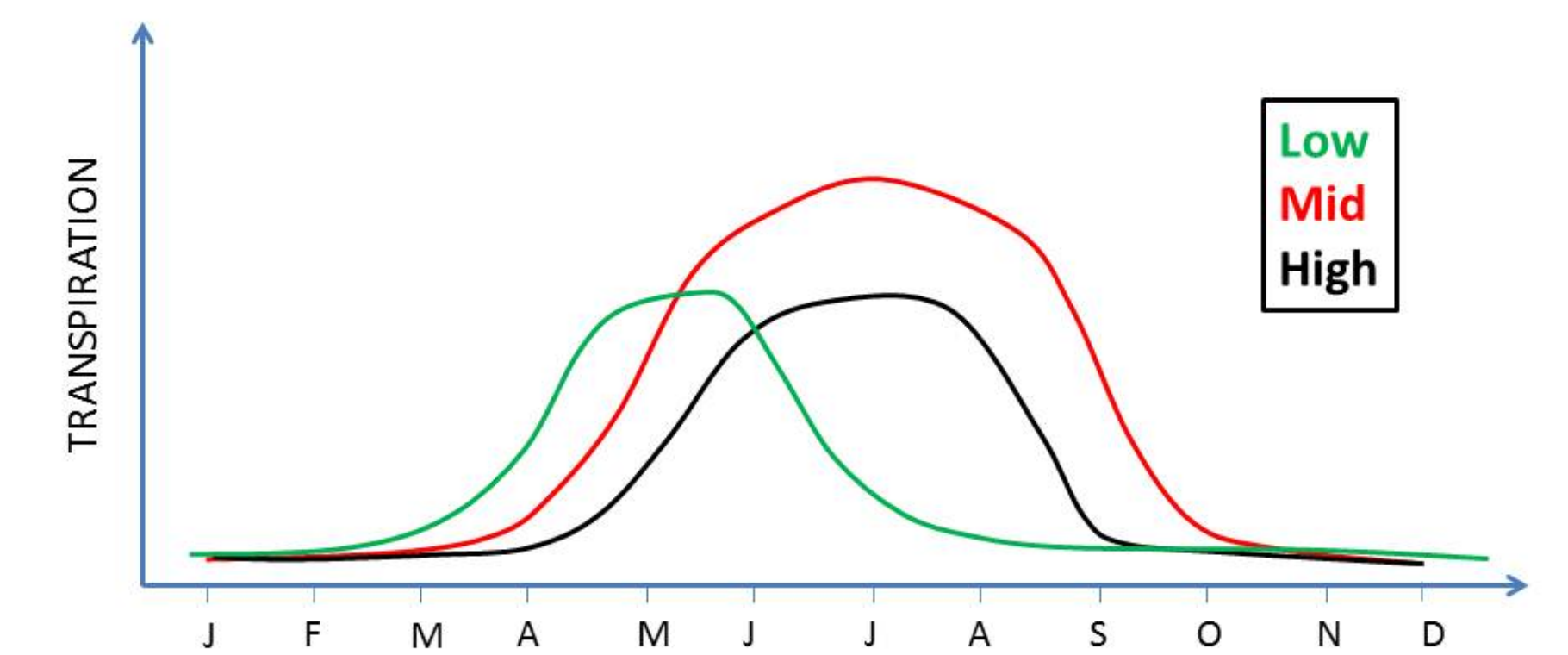


Figure 3. Mid-elevation sites are hypothesized to have the greatest total season transpiration. Transpiration is predicted to be limited by cold temperatures at high elevations and water availability at low elevations.



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