

Carbon Dioxide Fluxes in Alpine and Subalpine Soils of the East River Watershed

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Appendix (Tables and Figures)

Table 1. Sampling design and general site descriptions in the East River catchment. For detailed information, see Methods section above.

East Creek Sites	Wet Sites	Dry Sites	Instrumentation
Hanging Valley (West Aspect)	Upper Rock (Willow Hollow)	Upper Rock (Meadow)	Gas Well, Campbell Soil Moisture/Temp array
Slope Valley (East Aspect)	Lower Bradley (Willow Hollow)	Lower Bradley (Meadow)	Gas Well, Campbell Soil Moisture/Temp array

Figure 1. Map of the East River Watershed, first inset shows locations of Microcatchments. Insets of Upper Rock and Lower Bradley show approximate locations of dominant vegetation types (Maher et al.).

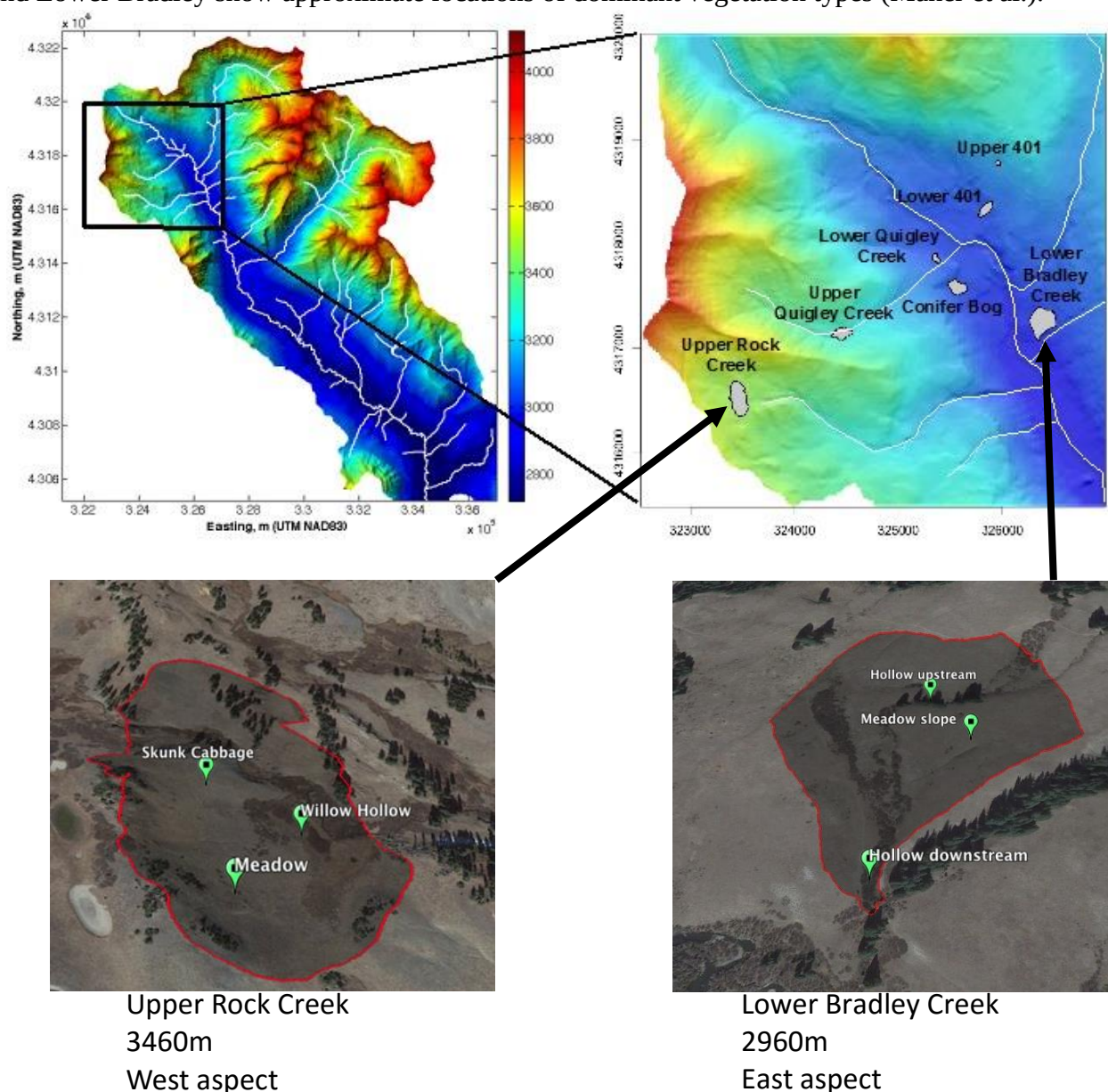


Figure 2. Bradley Hillslope Grid measurement point locations.

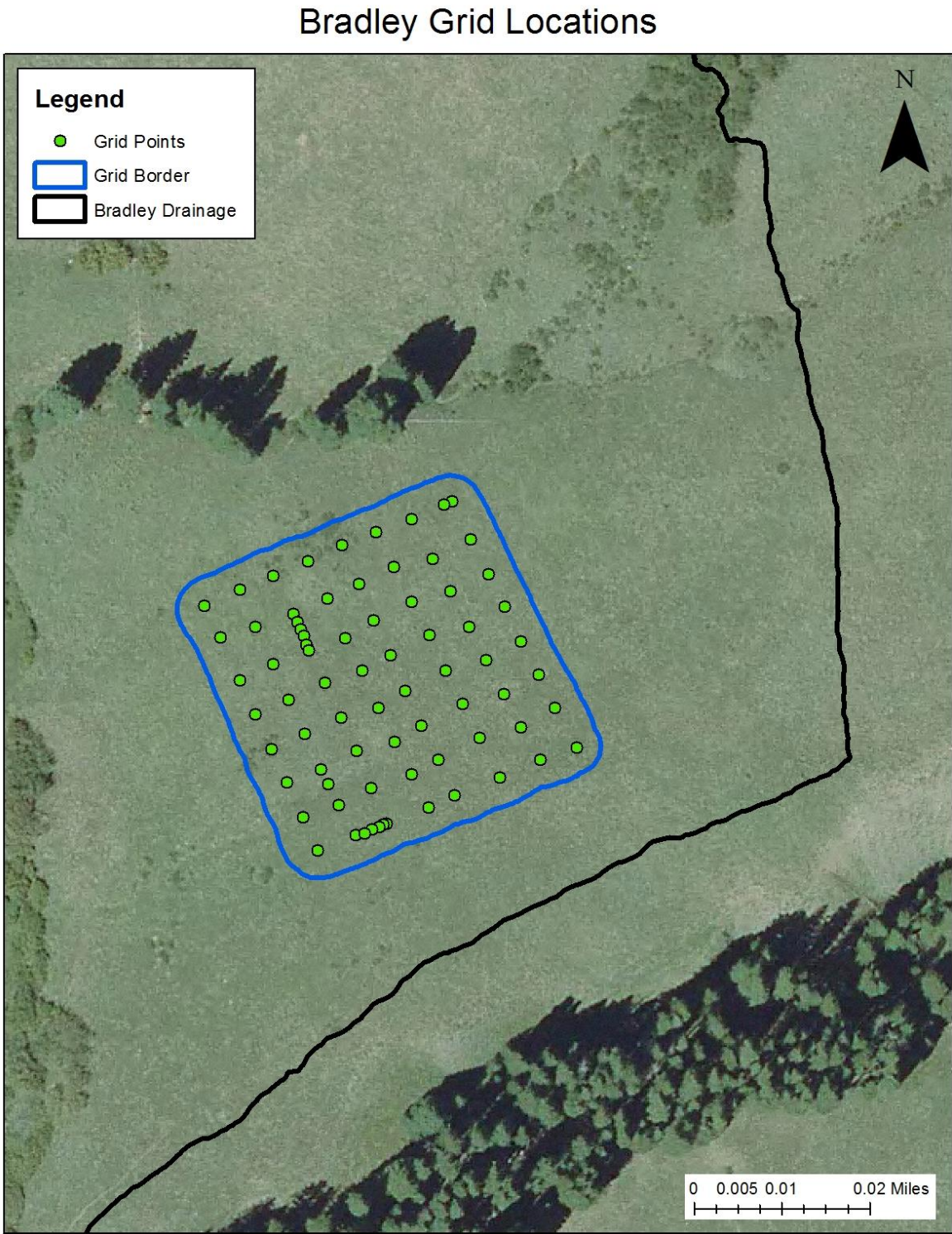


Figure 3. Soil Moisture Variograms where semivariance (difference in measured values at measurement points a given distance apart) is plotted against spatial variance (distance between two measurement points). Variation in late season (SM3) was nearly twice that in the early season (SM1).

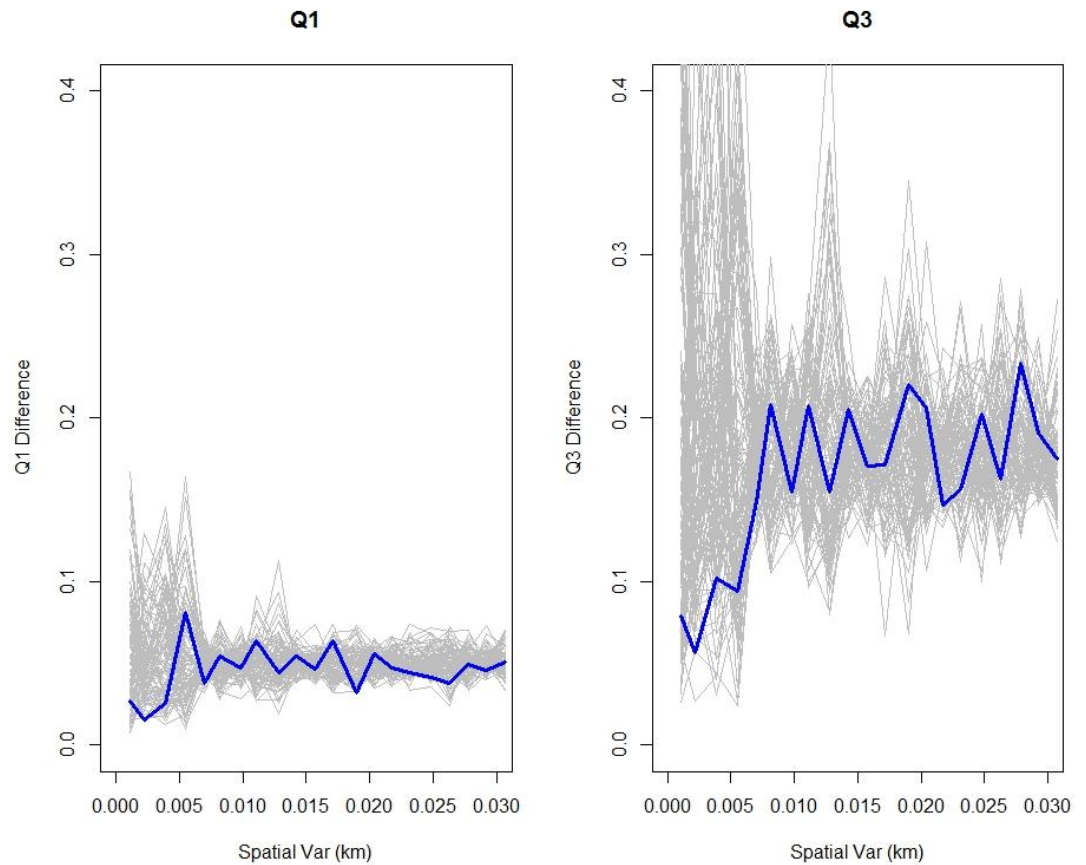


Figure 4. Variograms comparing Quadratic Rate from the first and third hillslope grid measurement. Variation in rate in the late season (Q3) was nearly four times variation in the early season (Q1).

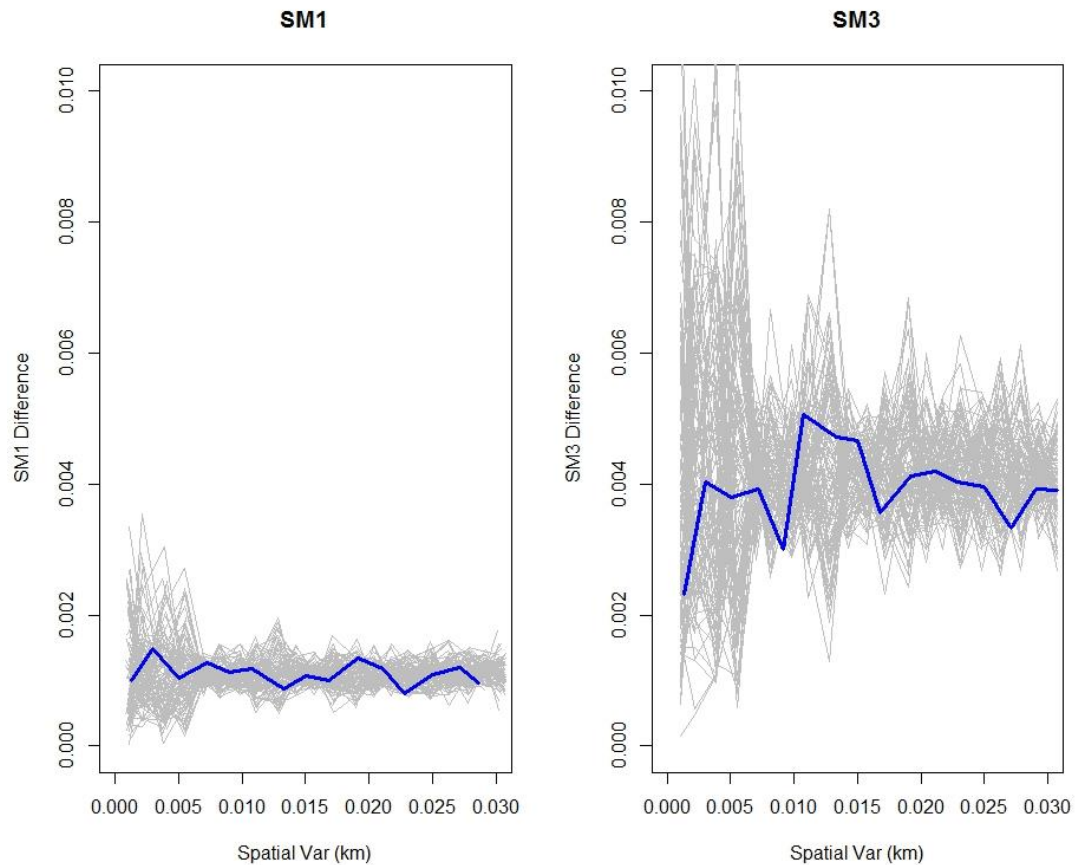
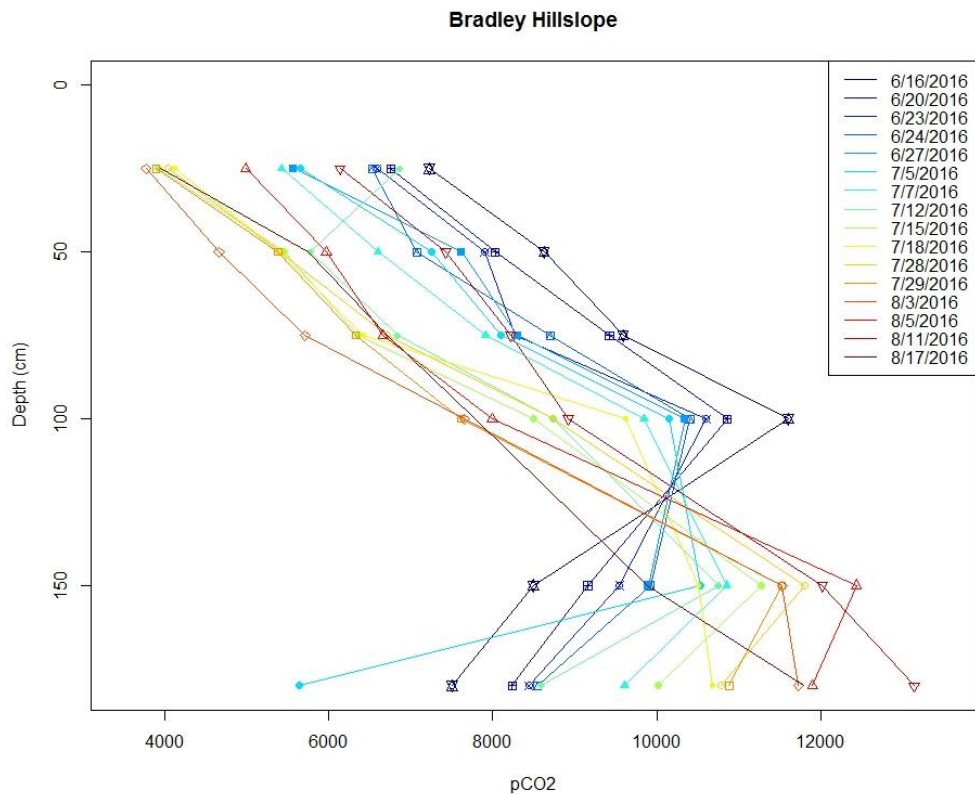
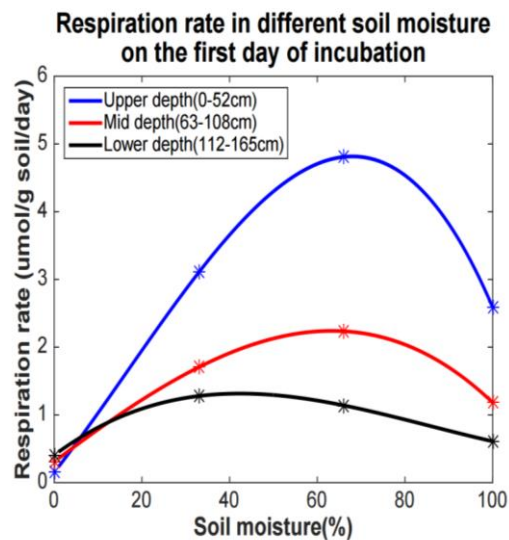


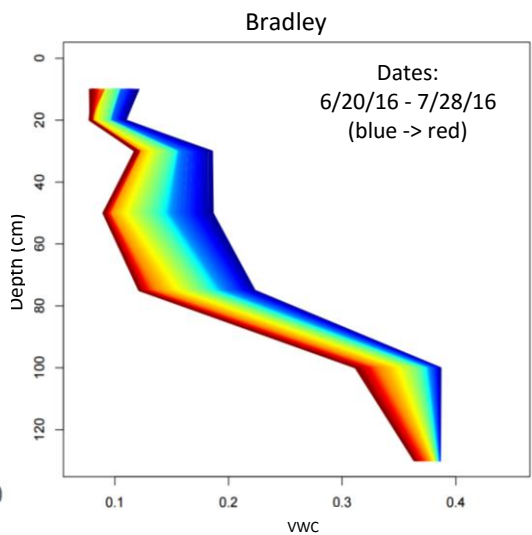
Figure 5. Gas well depth profile from Bradley Hillslope site. This profile demonstrates an interesting early season trend where concentration peaked at a depth of 100cm. This peak gradually flattened out as the season went on. Meanwhile, at depth (180cm), the concentration of CO₂ gradually increased over the course of the season. Also reflected are some post-rain event pulses (see in particular the profiles for 8/5/2016 and 8/11/2016). The other three figures show typical soil respiration behavior in relation to soil moisture, the volumetric water content of the soil at Bradley Creek over the course of the season, and total soil carbon at various depths for Bradley Creek, respectively (credits listed above figure).



Maher et al. (DOE Proposal)



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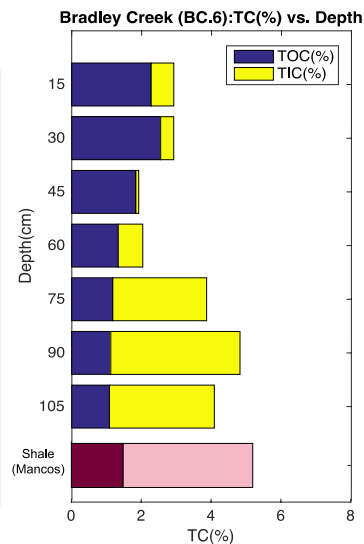


Figure 6. Boxplots showing comparative flux for each measurement on the hillslope grid. The rightmost boxplot shows all the data compiled.

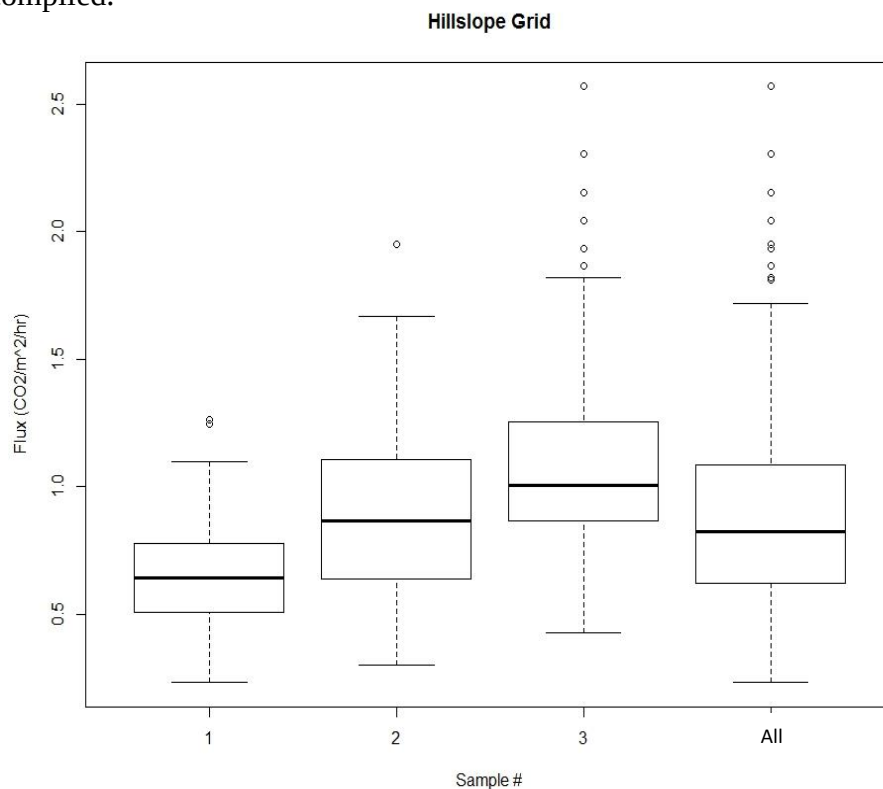


Figure 7. A time series of surface flux measurements taken at Bradley Hillslope. The blue line is the plot for spot one (BH1) on the hillslope and the red is spot two (BH2). Vertical yellow lines show dates of hillslope grid sampling (on 7/7/2016, 7/22/2016, and 8/8/2016).

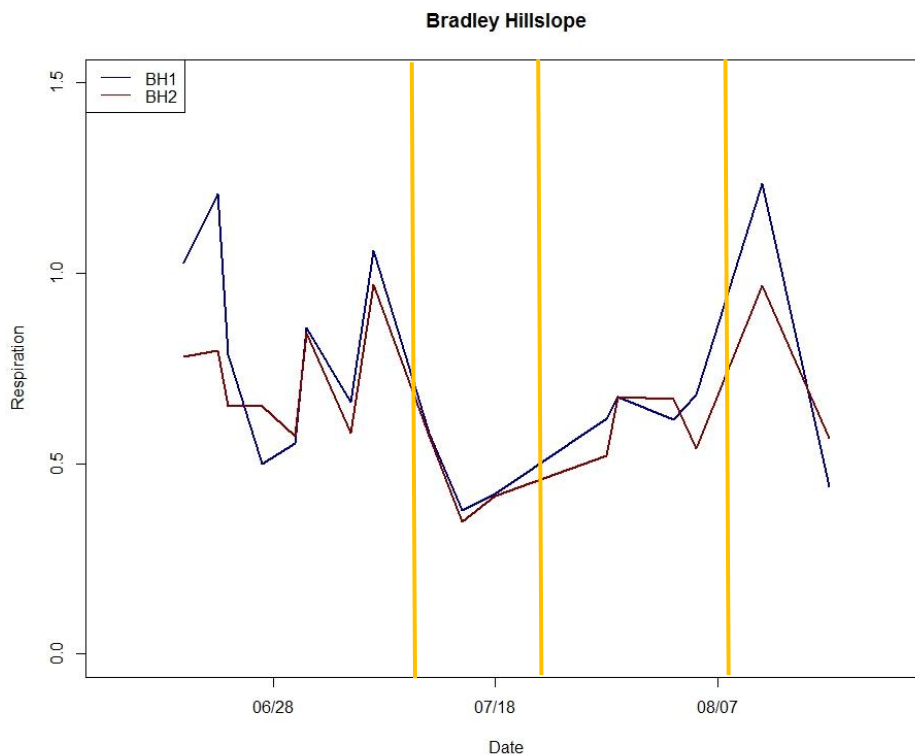


Figure 8. Boxplot comparison of fluxes across vegetation type. Measurements taken at random points in the valley as part of the broad-scale survey.

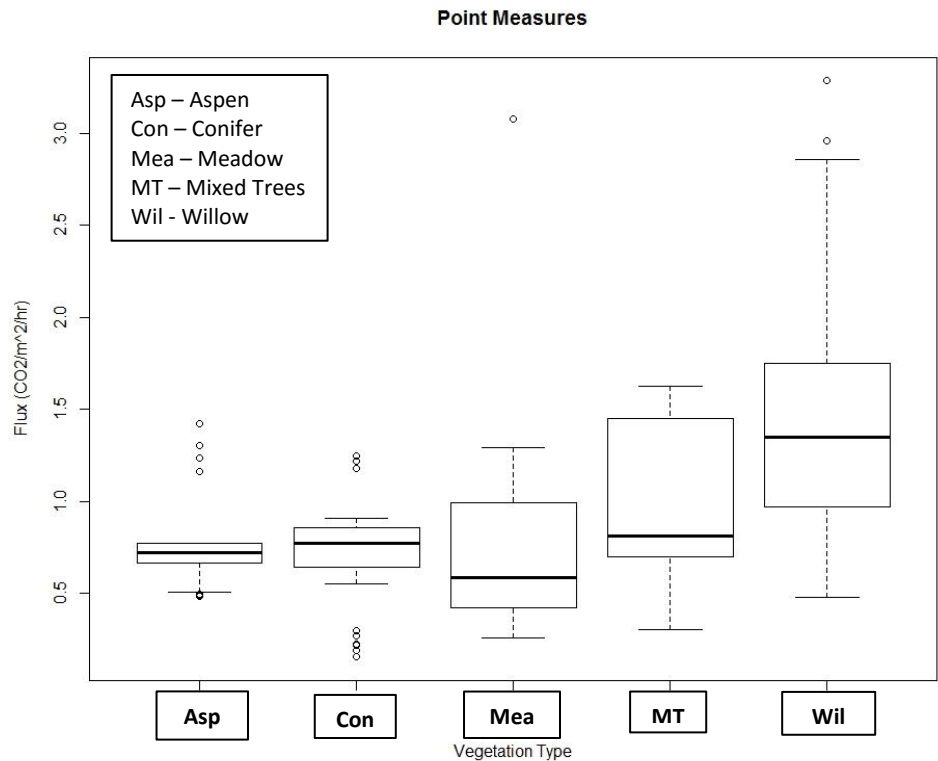


Figure 9. Boxplot showing all respiration fluxes for a given soil moisture value (x-axis).

