Land use and climate change impacts can alter the function of riparian zones, which are key mediators of terrestrial-aquatic connectivity. Globally, grasslands are experiencing woody expansion in their riparian zones, moving them across a biome gradient toward forest rather than grass dominance. Our research on grassland and cropland riparian zones suggests that those bordering first order streams are the most influential on downstream water quality. Woody expansion shifts bordering streams from green to brown food webs by decreasing in-channel primary production and increasing allochthonous inputs seasonally. Cattle also alter riparian zone function, leading to lower water quality as evidenced in whole-watershed exclusion/inclusion experiments. Cattle have particularly strong influences when there are trees in the riparian zone where cattle “loaf” during hot days. Woody expansion can also decrease downstream water yield, but this influence is context dependent. With current anthropogenically-induced shifts, woody expansion appears inexorable without severe control methods in regions where C4 grasses were competitive dominants in the riparian zone. The riparian ecosystems in the Central Plains of the United States have been pushed into a new stable trajectory making them more like nearby wetter deciduous forests. A macrosystem view of riparian zone function may assist in predicting where this trajectory and that of other riparian zones on Earth will lead under climate change and shifting biome conditions.

Seminar will be recorded and uploaded to the SAFS Youtube at www.youtube.com/@UWSAFS

Disability Accommodations: Contact the Disability Services Office at 206-543-6450 (voice), 206-543-6452 (TTY), 206-685-7264 (fax) or dso@uw.edu for accommodation requests.