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# Effects of Low-Level Salt Additions on Plant Growth and Implications for Riparian Detrital Processing

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# Effects of Low-Level Salt Additions on Plant Growth and Implications for Riparian Detrital Processing

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Riparian systems are important buffer zones between terrestrial and stream systems that filter nutrients and mediate stream health and inputs. Riparian plants are a major factor in a riparian zone's ability to filter these nutrients and dead leaves (detritus) provide energy input to both riparian and stream systems. Human activity is increasing salts like NaCl in riparian and freshwater systems. Sodium (Na) is toxic to most plants, and an overaccumulation of Na can lead to reduced plant growth or death. However, previous research indicates plants accumulate salts when soil salinization increases. We want to determine how much salt is taken up by plants, where plants store salt, and what impacts salt has on plant growth. We hypothesize that plants that receive low-level salt additions will uptake store salt. We predict that plants will store most of the salt in leaves, which can alter detrital food quality. And finally, we predict that plants will have reduced growth compared to plants without salt additions, which can alter a riparian zone's ability to filter nutrients. To test our hypotheses, set up a greenhouse experiment using the plant species *Brassica oleracea*. We potted twenty plants, with half watered with salt water and the other half watered with DI water. Each plant was watered weekly with 300mL of DI water and 0.15g (500mg L<sup>-1</sup>) of salt added to each of the salt plants. Initial plant Na content was measured and senesced leaves from each plant are collected weekly. Plants have been treated for about three months of this six month experiment. At the end of six months, each of the plants will be separated by leaves, stems, and roots and sent to a lab for chemical analysis, along with soil from each of the pots. Senescent leaves collected weekly will be chemically analyzed. If senesced leaves have higher Na content under low-level salination, detrital food quality will be altered. This can lead to adverse impacts on riparian zones.