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Decomposition rates can affect carbon storage and carbon dioxide release in ecosystems. Sodium is a limiting resource in many ecosystems and because heterotrophs, like detritivores, rely on sodium for many physiological processes, they will seek out salt in ecosystems with low sodium availability. However, most terrestrial ecosystems away from coastlines contain almost no naturally occurring salt. Human activity has greatly increased the amount of salts found in many environments. Although rivers and streams can carry nutrients and sediments long distances, very few studies have examined the impacts that salt has on riparian systems. Increased sodium can stimulate decomposition directly, or indirectly through increases in leaf sodium concentration. We tested how low-level salt additions would impact decomposition rates and plant sodium concentrations in riparian systems. We predicted that even low-level sodium additions would increase decomposition rates and plant leaf sodium concentrations in riparian systems. We delineated 20- 1 x 1 m plots adjacent to the bank of Wafer Creek (Ruston, LA). We randomly assigned 10 plots as salt (NaCl) treatments which received 500mg in 0.75 L reverse osmosis water (these levels match slight to moderate risk for plants in irrigation water) and 10 plots as controls, which were treated with 0.75 L reverse osmosis water. Each plot contained 4 litterbags that each had 3g of red maple leaves (10 plots contained an additional 4 litterbags that contained 3g of filter paper). Plots were watered with their respective treatment every two weeks. Litterbags were collected at days 0, 7, 21, 89, and 257. Ivy, grass, and oak plant samples for sodium analysis were collected at days 149, 205, and 247. Specifically, we collected live leaves from three species of plants spanning a diversity of functional traits commonly found in riparian systems (*Smilex pumila*, a sedge (*Carex* sp.), and river oaks (*Quercus nigra*)). Over 89 days, the initial litter bags collected had no difference in litter decomposition between low-level sodium plots and control plots. However, they were ~25% decomposed and the last litterbag samples have not been collected. Conversely, low-level sodium inputs had large effects on plants. We found that *S. pumila* and *Carex* sp. contained 1.4 times more salt and *Q. nigra* had 5.4 times more salt than conspecifics on the control plots after 149 days. Plant samples from day 205 and 247 are currently being analyzed. Together these results suggest that low-level sodium additions may not have a significant effect on the decomposition rates in riparian systems but will alter sodium concentrations in a diversity of plant leaves. The decomposition rates not increasing could be caused by the sandy soils found along Wafer Creek. Sandy soils have a high rate of leeching, which could decrease the amount of salt available to detritovores. The amount of salt available to detritovores could be further decreased because plants took up some of the salt initially applied to the plots. Furthermore, salt is toxic to many plants, so the uptake of salts may negatively affect the general health of the plants. Abscised leaves that contain salts may result in longer retention of those salts in the soil. Further experiments must be done to test these hypotheses.