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Title: Contingent Valuation, Net Marginal Benefits, and the Scale of Riparian Ecosystem Restoration

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Abstract:

This study estimates the benefits and costs of riparian ecosystem restoration along the Little Tennessee River in western North Carolina. The benefits are described in terms of five indicators of ecosystem services: abundance of game fish, water clarity, wildlife habitat, allowable water uses, and ecosystem naturalness. The study uses contingent valuation questions to estimate household willingness to pay (WTP) via increased county sales taxes for differing levels of restoration. This level of benefit would then be compared to the cost of actually implementing the restoration projects in question. Previous restoration projects involved establishing a riparian buffer by planting trees and grasses to stabilize the riverbank. Fences were also installed to protect the river from wandering livestock with some projects adding alternative watering options for the livestock. Building revetments, or using large logs to prevent further streambed erosion, is another common practice.

Using a representative mix of these methods based on previous projects, the average cost of restoration activities would be \$7.62 per foot. Since a cost-sharing program charges landowners 25% of this cost, the public benefits must equal or exceed 75% of the cost, or \$5.72 per foot. For a full restoration, six miles of the river needed to be restored and the benefits at this level was estimated at \$89.50 per foot, which is several magnitudes higher than the cost of \$5.72 per foot. At four miles of restoration, the benefits were estimated at \$19.02 per foot and at two miles the benefits were estimated at \$23.08 per foot. This study reveals that people were WTP a premium to achieve full restoration as opposed to one of the lower levels. Nonetheless, even the smaller levels of restoration exceeded the cost easily, so even partial restoration should be pursued if available funds will not be available for full restoration.