Streamflow and Cottonwood Recruitment [TWS]

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Cottonwood stands along the Wild and Scenic reach of the Missouri River in Montana are sparse and discontinuous. Because the recreational and wildlife values of these stands are high, there are concerns about how flow alteration and cattle grazing may be limiting reproduction. A retrospective study using tree excavation and dendrochronology established that current trees were disproportionately established in flood years. Results from an ongoing monitoring study suggest that (a) in most years large numbers of new seeds germinate in the bare, moist zone between the flow lines of the spring peak and fall minimum; (b) seedling mortality in subsequent years is extremely high because of grazing, flood damage, and winter ice scour; and (c) successful recruitment is most likely when infrequent high flows have positioned seedlings high on the bank, where local channel movement occurs, and when grazing intensity is low.