

A national application of critical loads by the US Forest Service to assess atmospheric deposition effects on watershed condition.

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The critical load (CL), or atmospheric deposition loading below which no harmful effect can be detected to an ecosystem component according to current knowledge, is a science-based tool of growing interest to land managers to understand existing conditions in relationship to natural resource protection goals. In a first national scale application by a federal land management agency, the Forest Service used terrestrial critical loads of acidification and nutrient nitrogen to assess air pollution effects to watershed condition throughout the national forest system. Here we report on the methods and decision-making processes that were used to calculate CLs, apply them to the 6th level HUC, and then classify watershed condition based on CL exceedances. Three ratings were used; good (functioning properly), fair (functioning at risk), or poor (impaired function); based on the maximum CL exceedance that occurred within the watershed. Forest managers then used these rankings, along with 22 additional attributes of watershed condition, to evaluate local conditions on individual national forests. Their responses regarding the utility of the CL-based component of the watershed condition assessment are discussed.

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