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The effects of large wood (LW) on water and sediment connectivity in river systems: a new LW dis-connectivity index and its application in sediment management contexts

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It is well known that in-stream large wood (LW) can have significant effects on channel hydraulics and thus water and sediment connectivity, i.e. by creating hydraulic resistance that decreases flow velocity and transport capacity. The relationship between an in-stream LW structure and its hydraulic function (incl. the related effects on water and sediment connectivity) is generally quantified through drag force. Drag analyses, however, are data-demanding and often not straightforward - especially in complex debris jam settings where LW accumulations consist of wood pieces of widely variable sizes. Here, we introduce a simple LW dis-connectivity index (calculated based on visually estimated, field-derived LW parameters such as the degree of channel blockage), which has been applied in different sediment management contexts in medium-sized mixed-load streams in Austria.