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## The hydrochemistry of plantation spruce forest catchments with brown earth soils, Vyrnwy in mid-Wales

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**Abstract.** At Vyrnwy, in mid-Wales, a study of the hydrogeochemistry of two small spruce forested catchments, one a control and one felled midway through the study, shows a classic picture of rainfall inputs damped by the catchment and stream waters the chemistry of which varies as functions of flow and particularly of the supply of more acidic and aluminium-bearing soil water and of more basic and calcic ground waters from the zone where weathering reactions with the bedrock are high. The ground waters are most alkaline although pH may be depressed due to high dissolved carbon dioxide pressures. Nitrate concentrations increase in the first year after felling and decrease thereafter below those of the control. Water quality changes due to the dominant hydrogeochemical processes show that harvesting raises no significant water quality management issues.

**Keywords:** Gran alkalinity, aluminium, spruce, harvesting, forestry, nutrients, trace elements, Vyrnwy, water quality

- [Final Revised Paper](#) (PDF, 870 KB)

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