

Suppl. Doc. 1: Case studies, in which variation-type beta diversity components of the BAS (Baselga, 2010, 2012) or the SDR method (Podani and Schmera, 2011) are used for characterizing community change along a gradient.

| Gradient | Communities | Factor explaining beta diversity | Method | Reference |
|--------------------------------|----------------------------|--|--------|-------------------------------|
| longitudinal river gradient | freshwater fish | temporal | BAS | Tisseuil et al. (2012) |
| temporal | freshwater fish | spatial | BAS | Tisseuil et al. (2012) |
| elevation | plant communities | elevation | SDR | Marini et al. (2013) |
| elevation | mayfly assemblages | temporal | SDR | Zedkova et al. (2015) |
| stream size | mayfly assemblages | temporal | SDR | Zedkova et al. (2015) |
| forest edge | dung beetle assemblages | temporal | BAS | Filgueiras et al. (2016) |
| fragmentation | dung beetle assemblages | temporal | BAS | Filgueiras et al. (2016) |
| latitude | vertebrate assemblages | spatial | BAS | Castro-Insua et al. (2016) |

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