

7. INDICATORS OF PRESENT CONDITION

The information assembled during the characterisation phase can be used to extract indicators of the current condition of the catchment and its spatial units. The reach scale is usually the main focus of interest. However, indicators representative of other scales, particularly of the segment and landscape units in which the reaches are situated, provide important contextual information for interpreting reach scale indicators.

Multi-scale indicators can provide much management-relevant information including:

- (i) Assessing current reach condition and degree of alteration
- (ii) Understanding associations between landscape unit, segment and reach properties. In other words, what types of naturally functioning reach are sustainable and feasible within particular segment and landscape unit conditions?
- (iii) Assessing potential reach condition in the context of its segment and landscape unit setting. In other words, to what extent and in what ways is the reach altered from the naturally-functioning reach types that are feasible in the segment and landscape unit setting, and to what extent does the condition of a reach conform to or differ from the condition of the segment in which it is situated?
- (iv) Establishing the spatial structure and condition of the river network. In other words, analyse the distribution of reaches of different style and condition throughout the network to assess (a) the presence and spacing of reaches that are in good condition and (b) the degree of alteration of intervening reaches.

These types of information can feed into:

- (i) identification of the best condition reaches so that they may be protected.
- (ii) selection of the most effective locations for restoration and the balance of expenditure on better condition reaches and linking reaches (according to both hydromorphological and ecological criteria).
- (iii) selection of appropriate styles of restoration for the segment and landscape unit context.

Table 7.1 lists a range of indicators that can be extracted using the information assembled during the characterisation phase, focussing on the reach, segment and landscape unit scales. At the landscape unit scale, the contemporary condition is used to generate indicators. At the segment and reach scales indicators of contemporary form and process and also alteration from 'natural' conditions are assessed.

NOTE: The indicators of current condition and alteration are included only as a list in this draft document, but will be defined in detail in the final report.

Table 7.1 List of Indicators of Current Condition and Degree of Alteration

SPATIAL SCALE	CONTEMPORARY FORM AND PROCESS	ALTERATION FROM 'NATURAL' CONDITIONS
LANDSCAPE UNIT	Rapid runoff delivery potential (based on topography, rock and soil water retention capacity, land use) Fine sediment availability (based on gradient, landscape dissection, land use) Coarse sediment availability (based on gradient, rock & coarse sediment exposure, evidence of mass movement, land use)	
SEGMENT	Valley / floodplain width and gradient (constrains channel type) Morphologically representative discharge(s) Extreme flows Flow regime Hillslope connectivity to river (valley and river confinement) Sediment budget status Extent and structure of riparian corridor Wood recruitment potential Potential River Types	Alteration of morphologically representative discharge(s) Alteration of extreme flows Alteration of annual flow regime Alteration of segment longitudinal continuity (water, sediment, seeds, wood)
REACH	Channel and riparian units suited to river type? Floodplain units suited to river type*? Diversity of channel width and bank forms / processes appropriate for river type? Wood and vegetated channel features suited to river type? Riparian margin vegetation structure (relative to that achievable under relevant natural plant associations) Extent of emergent vegetation (relative to that achievable under natural aquatic vegetation and river type)	Alteration of unit stream power from naturalised flow conditions Alteration of reach longitudinal continuity (water, sediment, seeds, wood) Alteration of bed condition - armoring, clogging, burial Erodible corridor insufficient for river type Restriction of channel lateral mobility Restriction of lateral hydrological connectivity Alteration of vegetated geomorphic channel features Alteration of riparian corridor (land management, plant species invasions) Evidence of trajectory of channel adjustment

* applies only for river types that have floodplains