included to maximize amphibian richness. Examples of indirect methods to assess diversity include habitat models (Schroeder and Allen 1992, Adamus 1993) and cumulative impact assessment methods (Gosselink et al. 1990, Brooks et al. 1991).

Predicting diversity with a model is generally more rapid than directly measuring diversity. In addition, predictive methods provide a means to analyze alternative future conditions before implementing specific restoration plans. The reliability and accuracy of diversity models should be established before their use.

Classification Systems

Classification is an important component of many of the scientific disciplines relevant to stream corridors—hydrology, geomorphology, limnology, plant and animal ecology. **Table 7.9** lists some of the classification systems that might be useful in identifying and planning riverine restoration activities. It is not the intent of this section to exhaustively review all classification schemes or to present a single recommended classification system. Rather, we focus on some of the principal distinctions among classification systems and factors to consider in the use of classification systems for restoration planning, particularly in the use of a classification system as a measure of biological condition. It is likely that multiple systems will be useful in most actual riverine restoration programs.

The common goal of classification systems is to organize variation. Important dimensions in which riverine classification systems differ include the following:

- *Geographic domain*. The range of sites being classified varies from rivers of the world to local differences in the composition and characteristics of patches within one reach of a single river.
- *Variables considered*. Some classifications are restricted to abiotic vari-

Table 7.9: Selected riverine and riparian classification systems. *Classification systems are useful in characterizing biological conditions.*

Classification System	Subject	Geographic Domain	Citation
Riparian vegetation of Yampa, San Miguel/Dolores River Basins	Plant communities	Colorado	Kittel and Lederer (1993)
Riparian and scrubland communities of Arizona and New Mexico	Plant communities	Arizona and New Mexico	Szaro (1989)
Classification of Montana riparian and wetland sites	Plant communities	Montana	Hansen et al. (1995)
Integrated riparian evaluation guide	Hydrology, geomorphology, soils, vegetation	Intermountain	U.S. Forest Service (1992)
Streamflow cluster analysis	Hydrology with correlations to fish and invertebrates	National	Poff and Ward (1989)
River Continuum	Hydrology, stream order, water chemistry, aquatic communities	International, national	Vannote et al. (1980)
World-wide stream classification	Hydrology, water chemistry, substrate, vegetation	International	Pennak (1971)
Rosgen's river classification	Hydrology, geomorphology: stream and valley types	National	Rosgen (1996)
Hydrogeomorphic wetland classification	Hydrology, geomorphology, vegetation	National	Brinson (1993)
Recovery classes following channelization	Hydrology, geomorphology, vegetation	Tennessee	Simon and Hupp (1992)