

Recovery Potential Metrics **Summary Form**

Indicator Name: VALUED ECOLOGICAL ATTRIBUTE

Type: Social Context

Rationale/Relevance to Recovery Potential: Community support for restoration is motivated by widely-shared recognition of a site's value, often in the form of natural aesthetics, biodiversity, rarity, charismatic species, outdoor sport e.g. fishing, or ecological goods and services. Formalized designation of a valued site not only reflects those original beliefs in the worth of an area but also reinforces the perception of its value with others, thereby strengthening the prospects for public support of its restoration. In extreme cases of public recognition and appreciation (e.g., the Everglades) this concept may be better characterized as 'iconic significance.'

How Measured: This metric is most easily based on formal recognition and designation by one of several programs that are generally aligned with protecting biodiversity, aesthetics, recreational sport, or other uses. The metric can be scored as a basic presence/absence metric, or high/medium/low/none rankings can be defined according to the available data.

Data Source: Geo-spatial data sources on rarity and biodiversity include NatureServe data systems (See: <http://www.natureserve.org/explorer/>) and state natural heritage databases (See: <http://www.natureserve.org/getData/programData.jsp#A>). Other designations with spatial data available include Wild, Scenic and Recreational Rivers (See: <http://www.rivers.gov/maps.html>), and Outstanding Natural Resource Waters under CWA. A number of cultural datasets can be obtained through ArcGIS online (See: <http://www.arcgis.com/home/search.html?q=cultural&t=content>). Fisheries programs at state and federal level may also have recognition categories such as 'blue ribbon' or Class A fisheries.

Indicator Status (check one or more)

- Developmental concept.
 Plausible relationship to recovery.
 Single documentation in literature or practice.
 Multiple documentation in literature or practice.
 Quantification.

Supporting Literature (abbrev. citations and points made):

- (Radwell and Kwak 2000) The Wild and Scenic Rivers Act of 1968 (PL 90-542) stated that "certain selected rivers of the Nation which with their environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations." A revision of the Act in 1982 added ecological value as an attribute that qualifies a river for consideration. The minimum eligibility requirements are that the river segment be completely free-flowing and possess at least one outstandingly remarkable value (799).
- (Paul and Meyer 2001) Despite widespread degradation, urban rivers and streams offer local communities an easily accessible piece of nature. Most people live in urban areas, and many children first encounter nature playing in urban streams. Hence, urban streams offer opportunities for ecological outreach and education that ecologists are only beginning to explore. The meteoric rise in numbers of local catchment associations and

adopt-a-stream monitoring groups is testimony to an audience eager for ecological insights (356).

- (Groffman et al., 2003) Urbanization is a human-driven process, so research in urban riparian ecology must consider human values and behavior (319).
- (Middleton, 2001) IWLA started the Stream Doctor project in 1993 as an integral part of the Save Our Streams program. Stream Doctor translates the latest scientific knowledge about stream restoration into language for a lay audience and helps volunteers examine their watershed, diagnose stream health, write a prescription for recovery, and initiate a physical fitness program for their stream. The analogy of the doctor (the volunteer) and patient (the stream) has proved very effective in educating people in the steps to stream corridor restoration (294).
- (Meyer 1997) Determining what is a healthy stream requires integration of stream ecology with disciplines such as economics and political science, because a concept of stream health must take into account the human attitudes and social institutions that are a part of the stream's societal watershed (439).
- (Meyer 1997) Rapport (1989, p. 128) argued, "judgements on ecosystem health also involve taking into account more than strictly ecological functions (e.g., considerations of the human uses and amenities derived from the system)." Accordingly, I shall argue that a healthy stream is an ecosystem that is sustainable and resilient, maintaining its ecological structure and function over time while continuing to meet societal needs and expectations. This concept explicitly incorporates both ecological integrity (maintaining structure and function) and human values (what society values in the ecosystem) (439).
- (Meyer 1997) The societies that have showed the greatest improvement in urban environmental conditions have been those with the strongest democratic institutions (Karr and Thomas 1996). River conservation organizations recognize the critical role of social institutions. When making decisions on where to take action, the human setting is always considered. Conservation organizations consider not only if a river has ecological, social, or cultural attributes that make it worthy of conservation, but also if it is threatened by human activities, and whether a champion for the cause of conservation can be found (442).
- (McDonald et al., 2004) As a result of strong community involvement, institutional and financial regulations, the location of the restoration site in a National Park, and the influence of governmental and non-governmental organizations, the actual decisionmaking process resulted in a practical river restoration that departed significantly from the idealized goals of a restoration defined in purely scientific terms. It is argued that these practical limitations are likely to remain the dominant influence upon the nature and scope of river restoration projects (257).
- (McDonald et al., 2004) ...there have to be guidelines for doing restoration, and it is better that these are recognized critically and explicitly, including social and economic influences, rather than left as implicit to the management process. This allows us to demonstrate the strong contextual influence that comes from socio-economic and cultural processes, and which results in the creation of projects that are best described as rehabilitation, due to the complex interactions between the river corridor and the communities within them (258).
- (McDonald et al., 2004) Incorporation of individual and community goals into the decisionmaking process is crucial to the restoration process (Boon 1998). Pfadenhauer (2001) identifies four reasons why broader community goals have an important influence: (1) goals are strongly influenced by public opinion and open to dispute through the decisionmaking processes that result in a particular project being adopted (Swart et al. 2001); (2) emotional and aesthetic factors may be especially important, such that 'identifying' with a component of a restoration project is necessary; (3) the popular acceptance of goals is required for a project to be socially relevant (Wissmar and Beschta 1998) and for public involvement (Goodwin 1998); and (4) the value of a unit of the landscape will be referenced to changing values such that even highly degraded systems (e.g. a canalized river in an urban environment) can acquire value (e.g. Adams

- 1997). Thus, restoration plays an important social role in mediating our relationship with valued places (e.g. Jordan 1994; Adams 1996; Higgs 1997; Eden et al. 2000) (263).
- (McDonald et al., 2004) The idea that community desires matter is well recognized by the restoration ecology community (e.g. Higgs 1997; Hobbs and Harris 2001; Pfadenhauer 2001; Clark 2002) and it has even been argued (e.g. Higgs 1997) that what the restoration achieves in relation to the ecosystem being considered matters less than the process by which restoration is undertaken in relation to those people with relevant interests in the site being restored (Wyant et al. 1995; Hobbs and Norton 1996; Pfadenhauer 2001): 'the worth of restoration is adjudicated on historical, social, political, cultural, aesthetic, and moral contexts' (Higgs 1997, 339) (264).
 - (Herringshaw et al., 2010) Involving the public in ecological restoration projects has strong potential to enhance public awareness of local ecological problems. It has also been shown that ecological research can inform learning processes and enhance public awareness (e.g., Fenemor et al. 2008). Participation, learning, and enhanced awareness may in fact provide additional benefits for restoration efforts, such as increasing individual interest and involvement in environmental issues and activities (McDaniel and Alley 2005; Thompson et al. 2005), as well as contributing to social acceptance of specific restoration projects by providing opportunities for public input (Daniels and Walker 2001) (536).