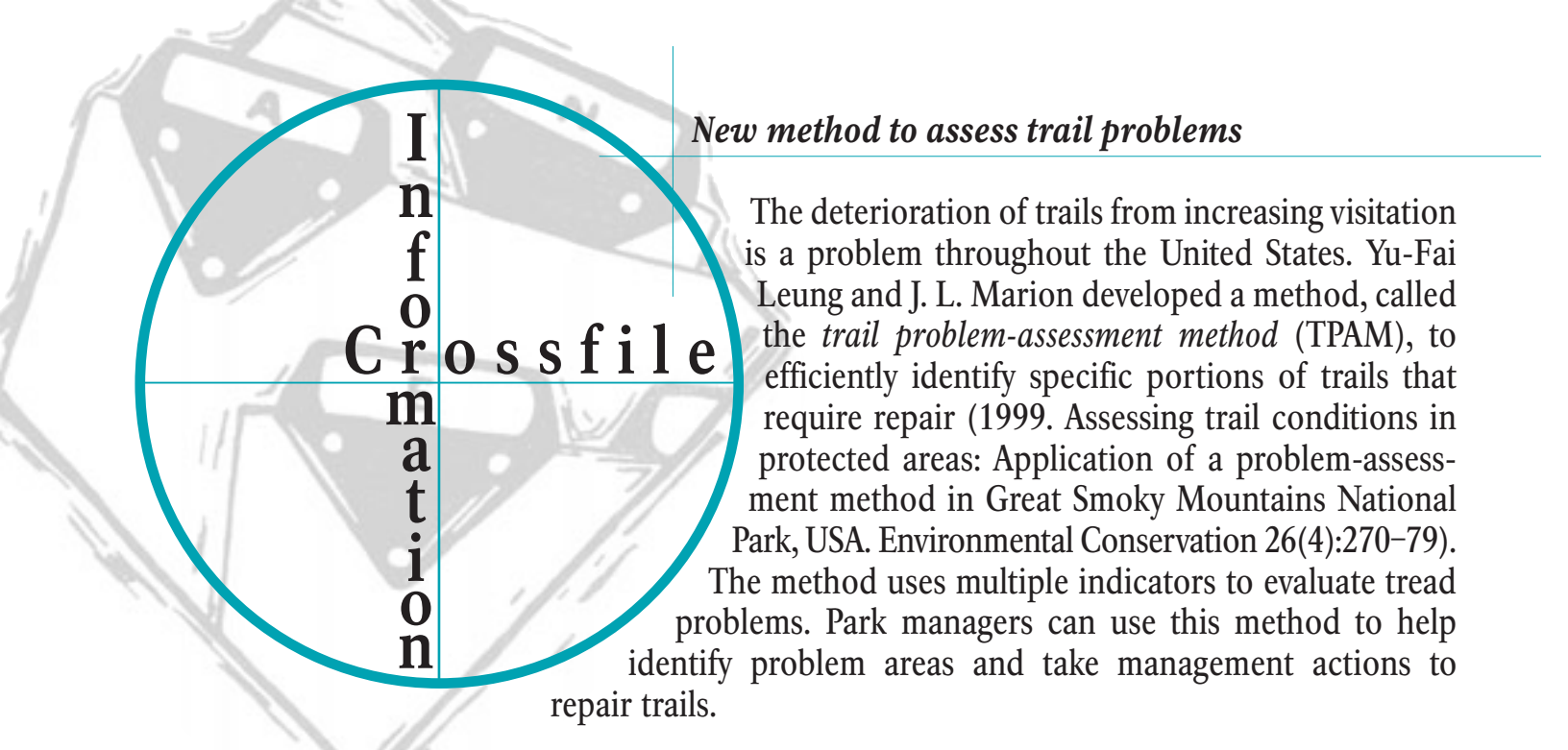




Information Crossfile

New method to assess trail problems

The deterioration of trails from increasing visitation is a problem throughout the United States. Yu-Fai Leung and J. L. Marion developed a method, called the *trail problem-assessment method* (TPAM), to efficiently identify specific portions of trails that require repair (1999. Assessing trail conditions in protected areas: Application of a problem-assessment method in Great Smoky Mountains National Park, USA. *Environmental Conservation* 26(4):270–79). The method uses multiple indicators to evaluate tread problems. Park managers can use this method to help identify problem areas and take management actions to repair trails.

The authors applied TPAM to survey the condition of 72 back-country trails (328 mi or 528 km; 35% of all trails) in Great Smoky Mountains National Park. Twenty-three indicators were measured, grouped into three categories to evaluate (1) trail type and use; (2) location, number, and lineal extent of pre-defined tread problems; and (3) design problems (e.g., excessive trail grades) and trail structures (e.g., number and relative effectiveness of constructed water bars and drainage dips for the diversion of water runoff from treads). The indicators were coded and could therefore be rapidly recorded on a simple form. The investigators recorded the distance from the trailhead to features such as water bars, and recorded starting and end distances from the trailhead for highly degraded segments. A recording was made only if a critical indicator condition had been reached. For example, soil erosion was not recorded unless it exceeded a depth of 11.8 in (30 cm) for a lineal distance of 9.8 ft (3 m).

The survey revealed serious deterioration of trails throughout the park, with damage being somewhat worse in the central and eastern portions of the park. Soil erosion of trail treads was the most extensive and possibly the most significant problem (14.9 mi or 24 km of trails had soil erosion exceeding 11.8 in or 30 cm). Rutted treads along with wet soils also contributed to excessive tread width (2.2 mi or 3.6 km in 176 locations or 0.7% of the surveyed trails). Users widen trails by trying to avoid poor or treacherous conditions in the main tread. Wet, muddy soil (752 incidents over an aggregate of 11.3 mi or 18.2 km) was the most frequent type of deterioration, in spite of a drier than average summer. Trails with wet, muddy treads tended to be concentrated where the use by horses was high.

The survey also revealed the effectiveness of trail structures. For example, water bars were rated as more effective than drainage dips for diverting water from the trail treads. Park officials have already used results of the survey in planning the management of trails.

TPAM has some limitations. For example, it cannot be used for determining average tread condition. Identifying which indicator condition constitutes a serious problem and determining the beginning and end of a deteriorating trail segment also are challenges. The authors suggested research be done to compare the precision of TPAM with other methods. A new article by the authors in the *Journal of Park and Recreation Administration* (fall 2001, volume 19(3):97-117) compares and contrasts TPAM with the point-sampling trail assessment method, providing an illustration of both methods and guidance in selecting between them.