

Watershed scale assessment of riparian ecosystems in the context of a Special Area Management Plan (SAMP).

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The Corps of Engineers, Los Angeles District is conducting a comprehensive wetland plan, referred to as a Special Area Management Plan (SAMP), to achieve a balance between economic development and aquatic resource protection in several watersheds in Southern California. Special Area Management Plans are defined as collaborative wetlands planning efforts within geographic areas of special sensitivity. An integral part of the SAMP is assessment of functional integrity of aquatic resources and an analysis of future development alternatives at the landscape level. Thus, in support of the SAMP a watershed scale, baseline assessment of riparian ecosystem integrity was conducted. Riparian ecosystems were defined as areas along perennial, intermittent, and ephemeral streams where the interaction with surface and groundwater results in distinctive geomorphic features and vegetation communities. A riparian reach, the unit of assessment, was defined as a segment of mainstem stream channel and adjacent riparian ecosystem exhibiting relatively homogenous characteristics with respect to geomorphology, channel morphology, vegetation communities, cultural alteration, and other factors. Riparian reaches were assessed in terms of hydrologic, water quality, and habitat integrity using a suite of indicators related to the physical, chemical and biological condition of the riparian ecosystem at three spatial scales: the riparian reach proper, uplands adjacent to the riparian reach, and the drainage basin of the riparian reach. Seventeen indicators in all were measured related to land use/land cover, vegetation communities, hydrology, sediment, and disturbance factors. Indicator metrics were collected using ground sampling methods, aerial photography, and spatial analysis in a geographic information system, scaled to a culturally unaltered "reference condition", and combined into indices of hydrology, water quality, and habitat integrity for each riparian reach. Supporting data, metrics, and integrity indices were archived in spreadsheets, databases, and ArcView projects. Information from the baseline assessment is currently being used to evaluate the potential impact of future development projects on riparian ecosystems in the target watersheds by comparing riparian ecosystem integrity under baseline and simulated future conditions. The resulting information will provide a comprehensive analysis of individual and cumulative impacts resulting from Section 404 of the Clean Water Act permitting program ensuring avoidance and minimization of impacts to aquatic resources in these watersheds. The end products will include establishment of an aquatic reserve system in addition to general and programmatic Section 404 permits within the study area.