

TA09

Cañon de Valle
Ecological Risk Assessment Pilot
Step Four: Study Design

Introduction

The ecological risk assessment pilot for Cañon de Valle is being conducted in accordance with USEPA, Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, (ERAGS). Steps one through three have been completed. These steps are screening level problem formulation, screening level exposure estimates and risk calculations, and baseline risk assessment problem formulation.

A field trip to Cañon de Valle was conducted on April 21, 2000 for members of the Environmental Restoration Program High Performing team for Ecological Risk Assessment. This trip coincided with comment resolution for the “Ecological Risk Assessment Pilot for Cañon de Valle, Status Report March 20, 2000.” That report documents step three of ERAGS, baseline risk assessment problem formulation. The discussion that ensued after the field trip addressed the path forward for step four, the study design and data quality objectives.

Key information needs are empirical evidence that contaminants of potential ecological concern (COPECs) are impacting small mammal populations and not impacting top carnivores. The wildlife exposure models in “Screening Level Ecological Risk Assessment Methods, LA-UR-99-1405” (SLERA) have sufficient uncertainties to prevent resolution of these questions without data from biota sampling. The top carnivore question is particularly relevant to Cañon de Valle because the Mexican spotted owl, a threatened species, is a top carnivore in the system.

Cañon de Valle Conceptual Model

Effluent discharges from Technical Area 16, including the 260 outfall (PRS 16-021(c)-99), silver outfall (PRS 16-020), steam plant, roof drains, and parking lot runoff all served to augment the surface flow in Cañon de Valle and to transport contaminants into the natural systems of the canyon. Data from media samples collected in the canyon show high explosives and metals, especially barium, to be present in surface water, alluvial groundwater, soils and sediments.

With the elimination of discharges from the 260 outfall and the steam plant, the aquatic regime of the canyon is receding to pre-laboratory conditions. During the drought of year 2000 Burning Ground Spring continued to flow but the rest of the canyon was mostly dry.

The problem formulation phase of the ecological risk assessment pilot for Cañon de Valle identified potential adverse impacts to aquatic, riparian and terrestrial systems in the canyon. The results of that analysis are summarized in Table 1. With the exception of

