The concentrations, spatial distributions, sources and potential ecological risks of polycyclic aromatic hydrocarbons (PAHs) in mountain soils from Tajikistan were investigated. PAHs were detected with concentration ranging from 17.15 ng g^{-1} dw to 257.93 ng g^{-1} dw due to the major contribution of atmospheric deposition around. Similar compositions of PAHs were observed with three- and four-ring congeners being the predominant components, accounting for 25.4% to 97.1% of total PAHs. The inferences drawn from the principal component analysis-multivariate linear regression (PCA-MLR) analysis were similar to that of isomer pair ratios. The related traffic vehicle emissions, coal combustion and coke oven combustion were classified as the main sources of PAHs in mountain soils of Tajikistan, contributing 61.3%, 29.5% and 9.2% to the total PAHs, respectively. The potential ecological risk assessment indicated no significant toxic effects for human health of PAHs in soils of Tajikistan at present.