WE159 Ecotoxicity of roadside soils in Moscow: finding correlations between traffic-related contaminants and their ecotoxicological effects O. Nikolaeva, M.V.Lomonosov Moscow State University / Research and Training soil-ecological centre of Lomonosov MSU; V. Tikhonov, MV Lomonosov Moscow State University / Faculty of Soil Science; M. Vecherskii, A.N. Severtsov Institute of Ecology and Evolution; E.V. Fedoseeva, Pirogov Russian National Research Medical University / Pediatric faculty; A. Astaikina, MV Lomonosov Moscow State University / Soil Science. Road transport is responsible for 57-75% of total emissions in urban areas and tends to be the key source of environmental pollution in cities [WHO, 2006]. Roadside soils perform as polycontaminated systems of intense pollutant accumulation originating from motor vehicles: total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH), heavy metals (HM), deicing salts (DS). The purpose was to find correlations between traffic-related contaminants in the roadside soils and their ecotoxicity across a typical highway (125,000 vehicles per day) in the city of Moscow, Russia. The topsoils (0-3 cm depth) were sampled perpendicular to the road at 1, 6, 10, 18 and 50 m distances from the roadbed in three replicates. TPH, PAH, HM in total and phyto-available forms, and DS were determined. A battery of soil-contacting organisms was tested: phytotoxicity of rye (H. vulgare L.) and garden cress (L. sativum L.); E. foetida earthworm growth rate and mortality; basal and substrate-induced respiration activity, nitrogen fixation and the denitrification activity of the soil microbial complex. To determine the possible risk to aquatic ecosystems, the algal toxicity test (S. quadricauda) was provided. Correlations between «chemical» data and intensity of «biological» effects were analyzed. Concentrations of most contaminants declined to the background values with distance from the road increase. However, the toxicity of roadside soils was obtained for all examined organisms within the whole 50 m zone. Live organisms exhibited different sensitivities to roadside soils pollution. The intensity of inhibition effects decreased in order: higher plants > earthworms and microorganisms > algae. The risk for aquatic ecosystems was assessed as low. Higher plants toxicity correlated with TPH, PAH, some HM, and DS; earthworm toxicity correlated with TPH, some PAH, HM, and DS; microorganism toxicity correlated with TPH and DS; algae had no observed correlations with contaminants. TPH and DS were general ecotoxicants affecting all organisms. Higher plants may be considered the PAH indicators and earthworms as HM indicators. Thus, biological methods are a prospective tool for assessing roadside soils. Chemical analysis must be accompanied by biological studies for comprehensive ecological assessment. A set of higher plants and earthworms may be recommended as the reduced test-battery of relevant organisms for costeffective assessment of the toxicity of roadside soils.