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## **Natural and induced radioactive nuclides in the soils of forest and long fallow lands of the background and polluted territories of Kaluga region of the Russian Federation.**

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The level of contamination with the natural (K-40, Th-232, Ra-226) and induced (Cs-137) radioactive nuclides of the following forest soils (pine-trees, fir-trees, birch-trees) and of the long fallow ecological systems at the polluted (southern part) and not polluted (northern part) territories of Kaluga region of the Russian Federation, was evaluated in 2017. The analysis showed that the specific activity of the natural radioactive nuclides Ra-226 and Th-232 is low and it changes insignificantly in the soils' profile of the studied ecological systems. Higher levels of K-40 are registered, reaching the maximum in the long fallow soils, which arises from a heavier granulometric composition of the differences that were formed here. In general the density of soil contamination with the natural radioactive nuclides in various ecological systems varies: 3,14-11,70 for Ra-226, 0,33-3,22 for Th-232 and 3,52-94,19 kBq/m<sup>2</sup> for K-40, which corresponds to the background indexes and complies with the regional lithological features of the territory. The density of the soils contamination with Cs-137 varies from 60.8 to 273,8 kBq/m<sup>2</sup> at the polluted territories (it does not exceed 3 kBq/m<sup>2</sup> at the background territories). Among the studied ecological systems the forest ones (especially coniferous) are the most contaminated with Cs-137, the long fallow ecological systems are the least contaminated with Cs-137. In comparison with the initial period starting with the precipitation in 1986, the density of soils' contamination with Cs-137 has presently decreased by more than 3 times in average. However this index still significantly exceeds the admissible level of 37kBq/m<sup>2</sup>. Cs-137 contributes most significantly into the summary specific activity of the soils and gives the power of the equivalent absorbed dose for the ecological systems of the polluted territories. K-40 provides this effect for the background territories.