A CASE STUDY IN THE CHERNOBYL EXCLUSION ZONE - PART II: PREDICTING RADIATION INDUCED EFFECTS IN BIOTA

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In recent years national and international programmes have proposed a number of frameworks and methodologies to assess the protection of wildlife from ionising radiations. Whilst some of these are now being used by national authorities there has been little attempt to rigorously test their predictions against available data. In part this is because there are few sites where radiation induced effects have been observed. The Chernobyl exclusion zone represents a site where assessment framework predictions from exposure through to effects can be thoroughly tested.

In a separate paper, we have tested predictions of terrestrial radionuclide transfer models developed within the EC FP5 project FASSET against available radionuclide activity concentration database for terrestrial biota in the exclusion zone. In this paper we use the dose conversion factors developed within the FASSET project to estimate internal and external doses to biota within the exclusion zone. The estimated doses are then used to predict effects at different biological levels of organisation using the *FASSET Radiation Effects Database* (FRED); predicted effects are compared to observed effects within the Chernobyl exclusion zone. The observed effects data for the exclusion zone covers organisms from soil biota through to fish and mammals.

Results of the comparison are used to make recommendations for future improvements to assessment frameworks.