Dosimetry for Animals and Plants – Contending Biota Diversity

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Diversity of living organisms and of their environmental radiation exposure conditions is a special challenge for non-human dosimetry. To contend with this diversity, ICRP (*a*) sets up points of reference by providing dose conversion coefficients for reference entities (known as the ICRP Reference Animals and Plants) and (*b*) uses dosimetric models which pragmatically assume simple body shapes with uniform composition and density, homogeneous internal contamination, a limited set of idealised external radiation sources, and truncation of the radioactive decay chains. This pragmatic methodology has been further developed and systematically extended. Significant methodological changes include: transition to the contemporary ICRP radionuclide database, a new extended approach for assessing doses of external exposure for terrestrial animals, assessment-specific consideration of radioactive progeny's contribution to dose coefficients of parent nuclides, and the use of generalised allometric relationships in estimation of biokinetic or metabolic parameters. The new methodological developments resulted in a revision of the dose conversion coefficients for the Reference Animals and Plants. Tables of the dose coefficients have now been complemented by a web-based software tool, which can be used to calculate user-specific dose conversion coefficients for an organism of arbitrary mass and shape, located at user-defined height above the ground and for arbitrary radionuclide and its radioactive progeny.