

MO169 Distribution of perfluorinated compounds (PFAAs) in great tits (*Parus major*) along a pollution gradient in Antwerp, Belgium, and their effects on reproduction. T. Groffen, Systemic

Physiological and Ecotoxicological Research (SPHERE), University of Antwerp / Biology; A. López Antia, Universiteit Antwerpen / Biology; L. Bervoets, M. Eens, University of Antwerp / Biology. Perfluorinated compounds (PFAAs) have been produced for over five decades. Due to their hydrophobic and lipophobic character they are suitable for a wide range of applications. However, PFAAs may enter the environment, accumulate in wildlife and may cause detrimental effects. The widespread use of PFAAs has resulted in a global presence. Therefore the major global manufacturer, 3M, phased out the production of perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) in 2002. Nevertheless, these compounds are still detected in high concentrations in the environment and biota. Besides that, the toxicity of environmentally realistic concentrations on terrestrial songbirds is not well documented. In the present study we measured the concentration of 12 PFAAs (8 perfluoroalkyl carboxylic acids (PFCAs) and 4 perfluoroalkyl sulfonic acids (PFSAs) in non-destructive samples of a terrestrial songbird, the great tit, at a fluorochemical plant in Antwerp, Belgium. In addition, samples from four other areas were collected, representing a gradient in distance from the pollution source. At each of these locations eggs have been collected and analyzed on PFAAs. Furthermore, reproductive success at each area has been assessed and related to PFAAs concentrations in these eggs. The PFOS and perfluorodecane sulfonate (PFDS) concentrations measured at the site of the fluorochemical plant are among the highest ever reported in wildlife with median concentrations of 34251 ng/g for PFOS and 81 ng/g for PFDS. Even though PFCA levels are also among the highest reported in wildlife, levels have increased since the last study in 2011. Furthermore, these concentrations decrease sharply with distance from the plant, but remain high compared to what has been reported in literature. No effects of PFAAs have been observed on reproductive success parameters (i.e. days to first egg, clutch size, hatching success, survival, number of fledglings, fledging success and nest failure). The outcome of the present study can be used for further monitoring studies, to investigate temporal changes of PFAAs concentrations using non-destructive samples.