

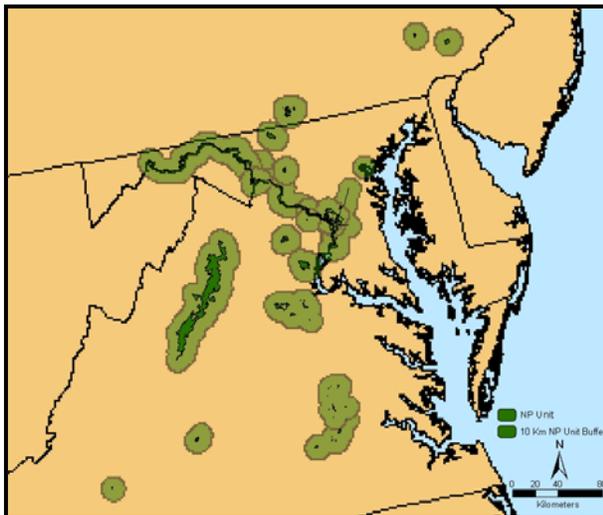
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## **Environmental Contaminant Hazards to Terrestrial Vertebrates Residing in Mid-Atlantic National Parks**

An in-depth evaluation of ecotoxicological data related to terrestrial vertebrates was undertaken at 23 Inventory and Monitoring National Park units in National Capital Region



and Mid-Atlantic Networks. Scientific data on the concentration of contemporary and persistent legacy pollutants in air, water, soil, and terrestrial vertebrates (amphibians, reptiles, birds and mammals) were compiled and evaluated. In addition, information on contaminant threats in proximity to the 23 units, including National Priority List Superfund sites, Section 303(d) Impaired Waterbodies, number and relative toxicity of current use pesticides and herbicides, Toxic Release Inventory sites, and Fish Consumption Advisories were also examined. A metric was derived that described the quality and quantity of existing data for each park, and in combination with known

contaminant threats, park units in need of additional study were identified.

Results demonstrated that over half of the Park Service study units are near Toxic Release Inventory sites discharging dioxins, polychlorinated biphenyls, lead or mercury into air or water, and fish consumption advisories are in effect at or near 22 of the 23 study units. Pesticide and herbicide use at the park units is minimal, with the exception of those units with significant agricultural leases. Despite highly regulated use, many of the pesticides and herbicides applied are believed to be highly toxic to amphibians, and some of the compounds are also highly toxic to birds. Only 70 reports were found that describe terrestrial vertebrate ecotoxicology data on or near the study units. Of the greater than 75,000 compounds in commerce in the United States, existing terrestrial vertebrate exposure and effects data in the present study were limited to 58 legacy organochlorine pesticides, polychlorinated biphenyls and individual congeners,



insecticides and rodenticides, metals, and some contemporary compounds (e.g., polybrominated diphenyl ether flame retardants, and alkylphenol and ethoxylate surfactants).



### **Research and Management Implications**

Based upon these and other findings, ecotoxicological monitoring and research investigations of terrestrial vertebrates are warranted at several National Parks. These include Shenandoah National Park, Richmond National Battlefield, Chesapeake & Ohio Canal National Historic Park, Valley Forge National Historic Park, Hopewell Furnace National Historic Site, Monocacy National Battlefield, and Harpers Ferry National Historic Park. The types of investigations vary according to the species

present at these parks and potential contaminant threats, but should focus on contemporary use pesticides and herbicides, polychlorinated biphenyls, mercury, lead, and perhaps, emerging contaminants including antibiotics, flame retardants, pharmaceuticals, and surfactants. Other management recommendations include additional training for natural resource staff members in the area of ecotoxicology, inclusion of terrestrial vertebrate contaminant monitoring and assessment into the National Park Service Vital Signs Program, development of protocols for handling and toxicological analysis of dead or seemingly affected wildlife, consideration of some alternative methods and compounds for pest management and weed control, and use of non-toxic fishing tackle by visitors.

This fact sheet is based on the following report:

**Rattner, B.A. and B.K. Ackerson. 2006. Contaminant exposure and potential effects on terrestrial vertebrates residing in the National Capital region Network and the Mid-Atlantic-Network. Final Report to the National Park Service. Interagency Acquisition Agreement F3992040005. 201 pp.**

