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USGS Patuxent Wildlife Research Center - Environmental Protection Agency Partnerships

The USGS Patuxent Wildlife Research Center (PWRC) has a productive history of partnerships with Federal and state agencies and with private corporations and groups for the purpose of conducting specific research studies. This fact sheet describes Patuxent's research, monitoring, and other continuing partnerships with the US Environmental Protection Agency (EPA).

Primary partnerships are those in which PWRC and the EPA share costs, or the EPA provides all direct support. The value in FY 2002 of the primary science partnerships listed in this fact sheet is $891,000. Secondary partnerships occur when studies are funded solely by USGS but benefit the EPA. The value in FY 2002 of secondary partnerships with the EPA totals $1,639,000.

Highlights

Research is underway to determine the applicability of Forward Looking Infrared (FLIR) for locating bird carcasses in agricultural fields. While helicopter-mounted FLIR systems have primarily been used to census large animals, we examined the use of FLIR in locating bird carcasses in agricultural fields to improve current carcass searching techniques. We evaluated carcass detection based on carcass size[Mallard (Anas platyrhynchos) and Northern Bobwhite (Colinus virginianus)] and cover type: bare ground versus grass. Freshly euthanized carcasses were placed 1-2 h prior to each flight. The imagery was recorded and analyzed after each flight. Carcasses were recovered with the aid of Global Positioning Systems. Both carcass sizes were detected on each cover type. There were no significant differences in detection for carcass size or cover type. Therefore species were combined and the carcass recovery rates were 40% and 30% on bare ground and short grass, respectively. This technique may be beneficial for carcass searches related to disease, pesticides, and accidents.

Mercury is a pollutant of serious concern: it is highly toxic to wildlife, it has a global distribution in the atmosphere and its aerial deposition to wildlife habitat is increasing. Concern is greatest for methyl mercury because of its very high toxicity and its propensity for bioaccumulation in food webs. Much of the evaluation of risk for methyl mercury in the environment has focused on fish-eating birds or other wildlife from aquatic habitats and there is very little information on terrestrial wildlife and flesh-eating birds (raptors) in particular. PWRC is utilizing the American Kestrel, a small falcon found throughout the United States, to study the relationship between dietary exposure to methyl mercury and its effects on important measures of reproductive success in a carnivorous bird. Patuxent researchers hope to (1) determine the lethal dose of dietary exposure to methyl mercury and describe the signs of toxicity, (2) establish the dose response for several measures of reproduction in Kestrels exposed to dietary methyl mercury, and (3) provide data on methyl mercury absorption and metabolism in the tissues of Kestrels to evaluate the parameters for a physiologically based toxicokinetic (PBTK) model of methyl mercury distribution in Kestrels.

Data derived from various monitoring programs like the Breeding Bird Survey and the North American Amphibian Monitoring Program provide a natural secondary partnership with EPA and have spawned primary partnerships as well. These data are used by the northeastern region of EPA, for example, in their Ecological Assessment of the United States Mid-Atlantic Region.

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