

Insights

Advanced Ecological Risk Assessment Methods

Site-specific environmental risk assessments are often complicated due to the significant uncertainties related to ecosystem functions and chemical interactions with the environment.

Identifying scientific problems related to specific projects, along with selection or development of the best, most applicable analytical methods is important in developing an efficient project approach and promoting overall project cost reduction.

ICF Consulting is supporting the United Nations Development Program and North Atlantic Treaty Organization (NATO) in assessing spatial disturbance and reuse options for former military sites. As a result of defense-related activities, large areas of valuable habitats within these sites were physically disturbed or contaminated by hazardous pollutants, including oil products and heavy metals, as well as by the Chernobyl Nuclear Power Plant accident.

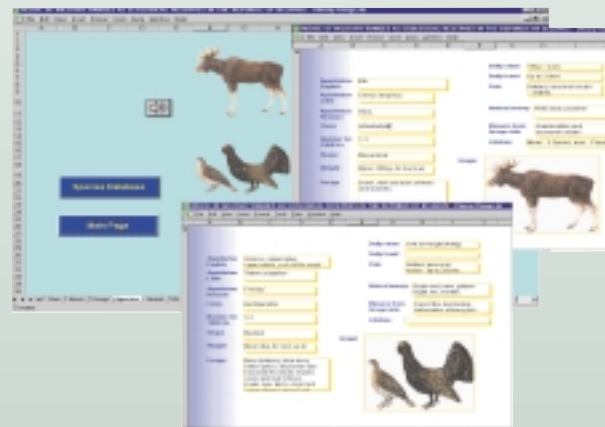
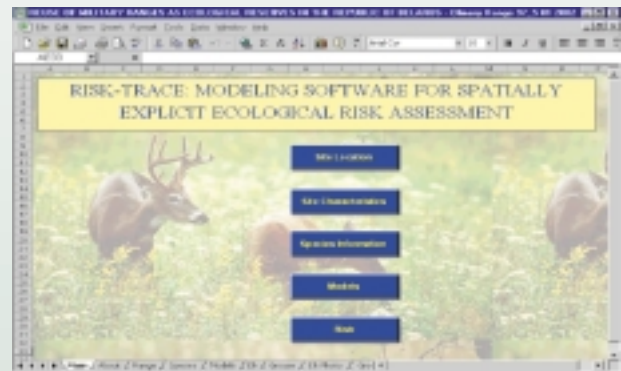
The military impact on such areas may not be wholly detrimental to the environment. Closure of the site to the public can result in environmental conservation of large portions of habitat. ICF Consulting is developing and integrating a number of risk and habitat assessment techniques into a comprehensive protocol to support policy decisions.

ICF Consulting uses a spatially explicit approach to ecological risk assessment, taking into account the typical size

of the receptor's foraging area, the type of habitat that the receptor is attracted to, and the receptor's daily movements. Even under conservative assumptions, incorporating rational (i.e., data-driven) parameters in the exposure models results in significantly lower median health risks when compared to a spatially nonexplicit model.

Reuse of Military Ranges as Ecological Reserves

Modeling software designed for spatially explicit ecological risk assessment was developed to assist in reclaiming former military sites.



An adaptive sampling approach combined with probabilistic and spatially explicit risk assessment techniques offers significant cost reductions and increased flexibility without the loss of scientific rigor.

Perspectives

Probabilistic risk assessments often allow for a reduction in the degree of conservatism built into the analysis. In many cases, it could help to justify a better, site-specific policy decision.

In many environmental projects, ICF Consulting implements dynamic work plans, paired with adaptive sampling and analysis strategies. These techniques are based on pre-established decision-making logic and incorporate field data and limited sample measurements to guide sampling/analytical efforts.

ICF Consulting has been working on developing framework for probabilistic risk assessment for the U.S. Environmental Protection Agency, the U.S. Army, and the U.S. Nuclear Regulatory Commission, as well as for private clients.

For more information, about ICF Consulting's environmental and risk assessment capabilities, please visit www.icfconsulting.com/risk