

# Wildlife Scenario Builder of the Wildlife Contaminants Exposure Model

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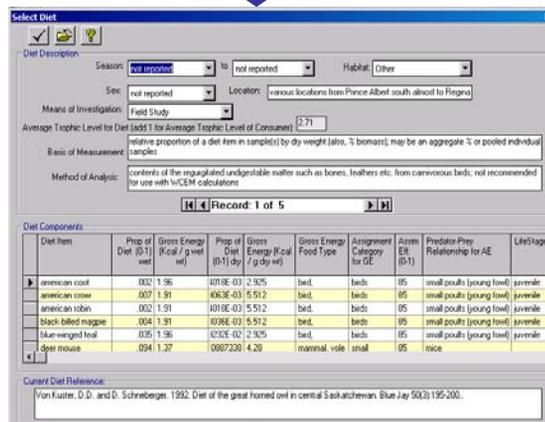


Quantitative analyses of wildlife exposure to environmental contaminants are often time-consuming, error-prone and tedious. To facilitate and enhance the quality of ecological risk assessments for wildlife, USEPA has been developing the Wildlife Contaminants Exposure Model (WCEM v.7.0). The Wildlife Scenario Builder (WSB) is a module of the WCEM that calculates the intake rates for a variety of media for species included in the WCEM. The WSB consists of a database of species specific life-history data, taken from the Wildlife Exposures Factors Handbook (EPA/600/R-93/187a), and allometric models that are used to calculate intake rates of air, water, food, soil and sediment. The life-history database is fully searchable and all records have detailed documentation. The WSB database also allows for the inclusion of user entered site specific information. The WSB calculates metabolic requirements and then uses detailed dietary information to provide itemized daily intake rates of food, soil, and sediment. When intake rates from the WSB are combined with chemical concentrations in environmental media, exposure can be easily calculated. The WSB allows the user to document and provide rationale for values chosen. The use of metabolic requirements and factors allows the possibility of the WSB to directly export data into other models e.g. individual-based models of movement or spatial ecological risk assessment models.



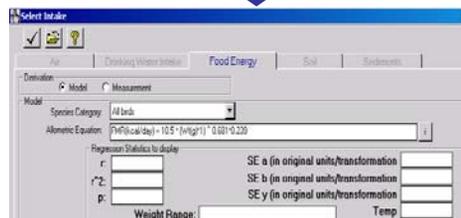
Select a species

Features a database of information on Birds (24 sp.), Mammals (17 sp.), Reptiles (5 sp.), and Amphibians (3 sp.) from the EPA Wildlife Exposure Factors Handbook (EPA/600/R-93/187a, b) and from Environment Canada



Calculate proportion of items in diet

Life history information includes detailed diet information that may be modified for project specific scenarios

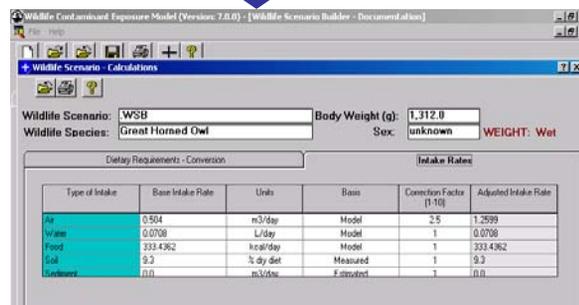
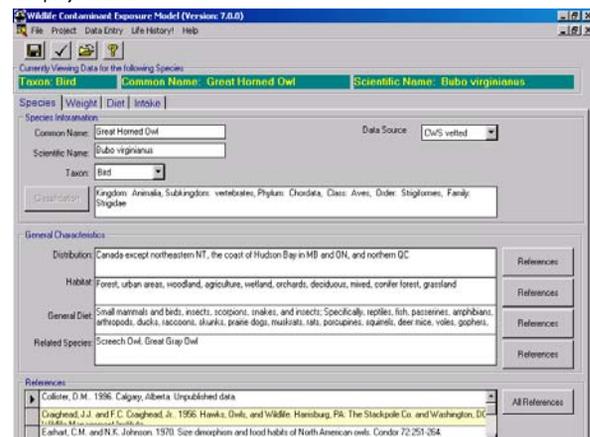


Scale intake by body weight by use of allometric equations

Intake pathways include: Air, Drinking water, Food, Soil, and Sediment

- Calculates exposure based on estimated free-living metabolic rate and caloric and water content of diet rather than food intake rates that are usually lab studies
- Allows the user to document and provide rationale for values chosen
- Allows multiple scenarios to estimate intake rates for different diet scenarios
- Reduces errors due to multiple calculations and unit conversions
- Intake rates from the WSB can be combined with chemical concentrations in environmental media to calculate exposure

Additional life history information is included to allow the user to select the most appropriate species for a project, or compare species found in the project area



Output includes intake rates by pathway

Other outputs include itemized dietary intake of food items and documentation of values and equations used in calculations

Combine with Chemical concentration in environmental media and diet items to calculate exposure

Acknowledgements:  
 Troy Robinson, ICF Consulting;  
 Julie Perot, Environment Canada;  
 Lorna Brownlee, Environment Canada  
 Reviewers of earlier versions

- Currently the help files are being updated and the databases are being checked against the original references
- The WSB will be distributed through the EPA website [www.epa.gov/ncea](http://www.epa.gov/ncea)
- More information can be requested from [wcem.ncea@epamail.epa.gov](mailto:wcem.ncea@epamail.epa.gov)