Species and Land Cover Data Sources and their Usefulness in Endangered Species Assessments

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Abstract

The FIFRA Endangered Species Task Force (FESTF), composed of pesticide registrants assembled to meet endangered species data requirements, has investigated numerous data sources that potentially would be useful in the evaluation of the relationships between endangered species and the locations where registered pesticide products might be used. Such data are needed for the Environmental Protection Agency's Office of Pesticide Programs' (OPP's) risk assessment and risk management activities. However, in order for the data to be useful for the risk assessment exercise, additional work on the degree of qualification, quality control and/or data aggregation needs to be performed. Data can vary from one state to another in quality, quantity and spatial resolution or coverage and therefore input from state experts is important and necessary. FESTF has investigated how and where to access data appropriate for use in the FIFRA regulatory environment, where stakeholder input is desired and in what manner such data could be compiled and retrieved. Data management tools such as those developed by FESTF can then be used to collate different data sources for use in the species evaluation process and document their source for future reference or updates. FESTF has rectified many types of data, and can import a wide variety of data from such sources as NatureServe and GEOSTAC (GeoSpatial Tools and Access). Data imported into FESTF's Information Management System (IMS), can easily be retrieved in support of a state (i.e. Section 18) or federal (i.e. Section 3) assessment and then used to delineate species protections and exclusions in order to meet local needs. This presentation reviews the strengths and weaknesses of the data sources, discusses why state-level input is needed and describes the application of the data in pesticide endangered species assessments that are conducted to support FIFRA registration actions.

Data Sources

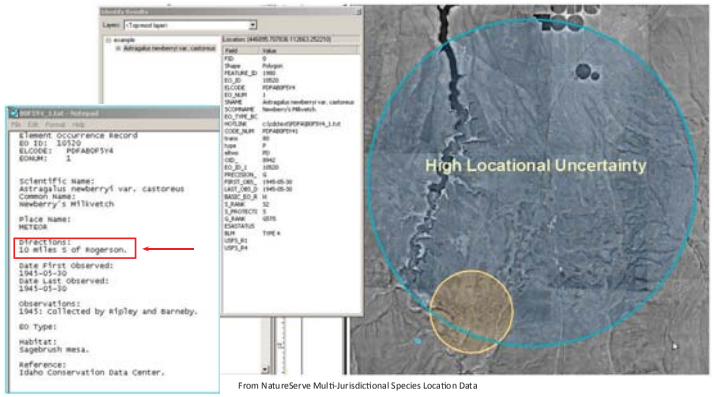
Data Sources range from the readily available to the obscure; from free public databases downloadable from the Internet to relatively costly datasets of a proprietary nature. At this point in time, however, there is no universally accepted national data set comprehensive for both land features and crop and species distribution. In order to meet the Endangered Species Act "best available" criteria, and construct a current set of data of acceptable quality and rigor for environmental assessment, multiple data sources are often needed to compile a single and meaningful integrated platform supporting impact assessment. Typically a national assessment requires the support of a nationally aggregated data set that is qualified for use by regional or local verification such as that which might be provided by a federal regional office or an individual state program. Example data resources are:

Species Data	Land Use/Land Cover Data
NatureServe Multi-Jurisdictional Data	GEOSTAC
US FWS Regional Offices	Agricultural Census Data
US FWS Critical Habitat Portal	Gap Analysis Data
State Heritage Programs	Federal land cover data sets
Customized data (Florida, California)	Customized remotely sensed data

Data Qualification

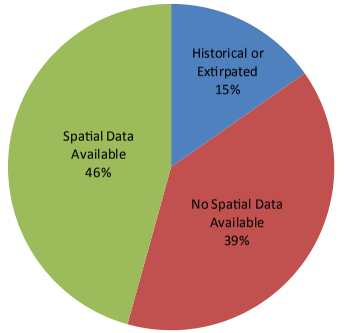
Data providing a general overview or trends are helpful when general assessments are made. However, in dealing with a national level assessment that must consider individual relationships between a given species and use site, numerous complications are introduced that make it important to evaluate the usefulness of a given dataset or even an element within it. Constant refinement by gathering input from states and local affected parties has the potential to reduce uncertainty and improve data reliability. Some challenges deserving exploration are illustrated below.

Observational Uncertainty, Geomorphology, Age of Survey, Definition of "Adjacency"



From NatureServe Multi-Jurisdictional Species Location Data

Spatial Data Availability for a Subset of Species Occurrences



A species occurence is the combination of a potential pesticide use, the occurence of a crop, and the location of a species. This example is taken from an assessment that had 171,355 occurrences.

Data Management

Data when used in this setting are dynamic, so it is essential to revisit and verify their relevancy to a given assessment each time they are accessed. The FESTF Multi-Jurisdictional Database, based on NatureServe data, and the FESTF Information Management System work together to manage and retrieve the data necessary for an assessment.

Collecting, Verifying and Using Supportive Data