2. International Search & Rescue Incident Database

The results presented in this book are taken from the International Search & Rescue Incident Database (ISRID). The ISRID project began in 2002 after Jim Donovan received a Small Business Innovation Research pilot grant from the US Department of Agriculture. The overall goal of the grant was to develop a low-cost graphical software package to assist in the planning and operations for ground search and rescue.

The USCG Search and Rescue Optimal Planning System (SAROPS) software used in the maritime environment contains a powerful feature—the ability to quickly generate a probability of area map. Search planners can optimally allocate available resources from this map (screenshots are shown in Chapter 9).

The project needed information and data on the factors that might predict the probability of area for a missing subject on the ground. Prior to ISRID, distances from the initial planning point (circles on the map) were well documented. This simple ring model could not fully help predict how lost persons might be found. Lost person statistics are only as good as the data that goes into the database. Therefore, we decided to collect more detailed data and create a larger database to make better predictions than those made in the past.

International Search & Rescue Incident Database (ISRID) Goals

- ☑ Model previous lost person statistics in order to best predict where the current lost subject will be located.
- ☑ Predict the lost person's likely survivability.

This chapter explains the purpose of ISRID and how a database from seven different countries was put together. Therefore, it is important to discuss the

goals of the database, ecoregions, the fields found in the database, and the process of creating any new subject categories.

To write the ground SAR software, a large database of lost person behavior would be required. The existing reports and papers were too small or too local. However, we had the framework for a more global and detailed description of lost person behavior. Syrotuck had shown the value of subject categories and terrain.[1] Mitchell had shown the importance of regions.[2] Koester and Heth and Cornell had shown it was possible to collect more than just distances from the initial planning point.[3,4] Donovan contacted Koester to begin work on the components of an international database. Twardy joined the team to develop a Bayesian network.

Because of time limitations it was not possible to develop a form, obtain an international consensus on the form, distribute the data collection tool, start collecting data, and get the collected data back. Mitchell had already shown the consensus committee process could be long and arduous. He worked from 1975–1979 just to develop a consensual data collection form, and his actual data collection did not start until 1980.[2]

Instead, a different process was developed. Data contributors would continue to use their existing data forms and formats. It would be the responsibility of the grant collaborators to integrate all the different data fields. This moved the burden of collating data from those contributing data to the ISRID team, and it allowed contributors to begin sending data immediately. The process was similar to a *meta-analysis* common in many formal large studies.

Data inclusion and *data exclusion* criteria were established to determine the sources from which data could be collected and included in the ISRID database. According to these criteria, the SAR incident needed to be:

- ☑ From a report or incident in which a "Search and Rescue" organization was involved.
    - Report or incident means the SAR team had some form of documentation regarding the incident. In many cases, the subject was found while the SAR team was mobilizing or en route. If data was collected it was included in ISRID.

- "Search and Rescue organization" ranged from paid professionals, such as the National Park Service, to "professional" volunteer teams. In many cases, law enforcement agencies had specialized SAR teams. Incidents were only collected from the specialized police SAR teams and NOT the more general law enforcement records.

☑ Formally collected and recorded onto a form or into a database. A "word of mouth" report was not accepted.

Data was excluded from the ISRID database for the following reasons:

☒ Duplicate cases
☒ Multiple subjects, all with identical outcomes
☒ Subject self-reports
☒ Media only reports
☒ Law enforcement only response without any form or pending form of SAR response
☒ Unable to classify the incident type
☒ The record was missing source data for calculating a necessary statistic.

Using the above criteria, the ISRID project proceeded to contact entities (typically federal or state/province level) with appropriate SAR databases. If data was collected from a statewide source, no further attempt was made to collect data from other sources in the state or province. Data was collected either electronically or from paper forms. Paper forms were hand-keyed into an electronic format. Protocols were developed that allowed data to be converted into a universal format. The data was then cleaned (misspellings, obvious mistakes) on a case by case basis.

Ecoregions

Lost person behavior involves an interaction of the person with the environment. Characteristics of travel differ in different geographies and contexts. It made little sense to combine cases from Iceland with the southern tip of Florida. Most existing databases were based upon states; some represented entire countries. It was expected that important differences would exist, based upon Mitchell's regional observations.[2] Yet, even within a state it was possible that one part of the state could have lush vegetation with lots of rainfall,