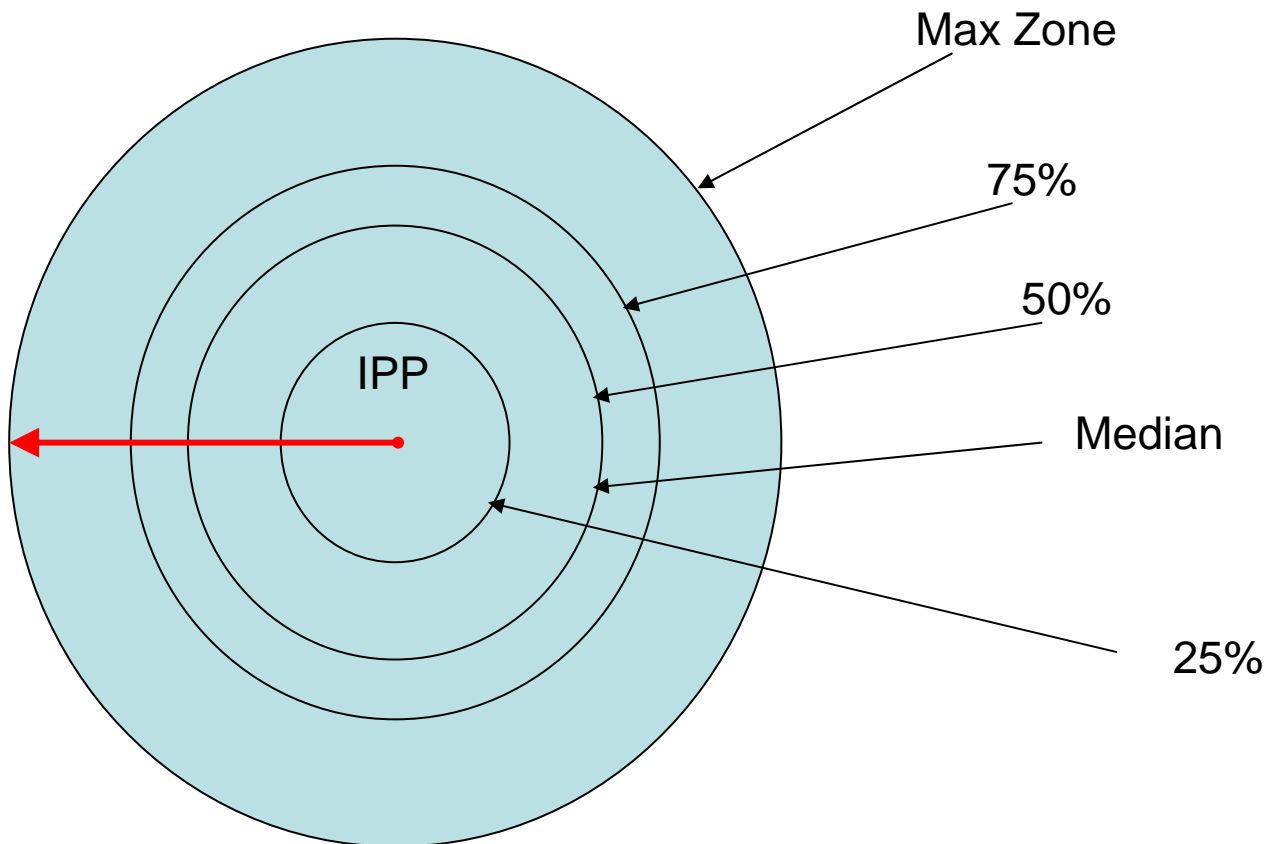# Establishing a
Statistical Search Area

By Ted Fisher Vermilion County STSAR (Special Tactics Search and Rescue)

A **Statistical Search Area** is based on Lost Person Behavior Statistics it takes into account past search analysis and pinpoints areas most likely the subject may be in.

Search statistics and Lost Person Behavior attempts to take the following into consideration: Patterns, Trends, Relative Significance, Consistencies and Inconsistencies of the subject.

For Example let's look at Lost Person Behavior Statistics for the Elderly Subject (over 65 years old); excerpt from Analysis of **Lost Person Behavior** By William G. Syrotuck

This is a common format for this type data. IPP = Initial Planning Point Initial Subject's location.

LOST PERSON BEHAVIOR (Elderly 65 years or older)

Remember they could be suffering from dementia or senility or Alzheimer's.

If in good health they are capable of traveling as far as younger subjects undertaking the same activity.

Elderly persons behave more rationally than the young.

They are more willing to build a shelter and aid in their own rescue.

Their orientation could be to the past rather than the present.

Many pose the same supervision problem as young children.

The more active ones are likely to exhaust themselves rapidly which may result in illness such as a heart attack.

They may have problems associated with being old such as being deaf and unable to respond to searchers

SEARCH STRATEGY

It is the activity they are undertaking which is important for search planning rather than their age.

LOST PERSON DETECTABILTY

In good weather **59%** were easily detected. **41%** were found in the prone position.

In bad weather **10%** were easily detected. **90%** were found in the prone position and therefore difficult to detect..

47% used paths, tracks or other route of least resistance.

53% were found in undergrowth/bushes/thickets.

SURVIVABILITY

In good weather there is a **65%** chance of survival

In bad weather there is a **33%** chance of survival.
*Note: Bad weather is defined as temperature below 45 degrees Fahrenheit with rain, snow or wind.
Hypothermia!*

PROBABILITY ZONES – (statistical planning data)

(Miles from IPP) Syrotuck's data inclusive of DAT

Hill or Mountainous Terrain				
Median	25%	50%	75%	Max
1.2 DN	0.5 UP 1.8 DN	0 UP 2.4 DN	0.4 UP 2.6 DN	90% 1.0 UP 3.0 DN

DN = Downhill
UP = Uphill

Flat Terrain				
Median	25%	50%	75%	Max
1.0	0.8-1.0	0.7-1.2	0.1-1.3	93% 0-3.0

To implement this; your search planners draw concentric rings based on the distances your subject could travel based on the Lost Person Behavior Statistics. Look at the chart on the previous page for "Flat Terrain" there are 5 columns listed Median, 25%, 50%, 75%, and Max. Breakdown as follows 25% of the cases the subject was .8 to 1.0 miles from the IPP. 50% were .7 to 1.2 miles from IPP and so on. The median represents the middle ½ the cases were found within 1 mile of IPP. Max represents the farthest away from IPP the subject was located.

Therefore to get a 75% POA or Probability of Area you shouldn't have to search any farther than 1.3 miles from IPP.

WARNING: this is a planning tool only for search planners; will all subjects follow these statistics? **NO!** Will a subject walk out of the Statistical Search area? **YES!** You can bank on it. Using these statistical tools has its drawbacks such as: Statistics are based on other people and other areas not your subject or your area. Statistics databases for lost people are generally small in size in other words there not many cases that the statistics are based on. Usually this approach is limited to telling you where to search.

Even with the drawbacks, Statistical Search Area Analysis is a valuable tool to help you plan your search missions and should be used in combination with other tools by your planners.

Further References:

Analysis of Lost Person Behavior
by William G. Syrotuck, Jean Anne Syrotuck (Editor)

- **Paperback:** ; Dimensions (in inches): 0.25 x 9.00 x 6.00
- **Publisher:** Barkleigh Productions, Inc.; (1977)
- **ISBN:** 0970049404

Hill, K. A. (1997). *Lost person behavior*. Ottawa: National SAR Secretariat.

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