By analyzing the behavior of past lost persons in similar situations, it may be possible to "predict" what the subject now being sought might do, where he/she might go, or where he/she might be.

This concept is a search planning tool, dealing with generalities, and not absolutes.

1.0 Lost Subject Profile.

A lost subject profile is a useful tool when trying to determine where, when and how to search for the subject. The profile is the compilation of all information regarding the subject, which might provide clues as to actions he/she may have taken that either contributed to the disappearance, or in response to becoming lost.

Components of a complete subject profile are:

(1) Physical abilities.
(2) Mental condition.
(3) Experience.
(4) Personality.
(5) **Behavior statistics.**

Sources for most of the lost subject profile components are persons such as family, friends, co-workers, and medical professionals. The fifth component listed above, behavior statistics, is constructed by studying past incidents.

2.0 Lost Person Behavior Statistics.

Lost person behavior statistics refers to the analysis of historical search data for the purpose of gaining insight into the likely actions of persons being searched for.

William Syrotuck pioneered the concept of analyzing the behavior of lost persons. In 1976 he published a study of 229 cases from the states of New York and Washington.

In 1984 Barry Mitchell analyzed 2,814 cases that NASAR had compiled from across the United States. Ken Hill reported on 203 cases from Nova Scotia in 1994.

In 1992 Koester and Stooksbury studied 25 cases involving Alzheimer's patients in Virginia. Bob Koester has continued his research into Alzheimers and now has a data set of 87 which is included here. Bob has also looked at the category 'walkaways' and he now suggests two new categories – "Psychotics" and "Mentally Retarded" to replace this. He has sufficient data to support these two new categories, and with his kind permission we include them here.

Information from these studies is presented in the following charts.

Lost Person Behavior Checklist

"Children (1 – 6 years)"

Category Characteristics	Where?	How?

(Hill, Syrotuck):

Young Children, 1 – 3 years, unaware of the concept of being lost

Navigational skills and sense of direction almost non-existent

Tend to wander aimlessly

Do not respond to whistles or calls

Good survivability because of tendency to find shelter

Children, 3 – 6 years, have a developing concept of being lost and will attempt to return home or go back to a familiar place

They may panic and become further lost as they attempt to 'find themselves'

Do not understand the fact that a return trip is needed – their explorations are usually one way

Tracks, trails etc. plus 'short cuts' that may not readily appear as a well defined track to an adult

More mobile than children 1 – 3 years

May become lost following an animal or group of older children into the undergrowth or in exploring

(Hill, Syrotuck):

They often seek out a place to lie down and go to sleep – under thick brush, an overhanging rock, a picnic table, inside a car boot, inside an abandoned appliance etc.

They are difficult to detect

Rarely walk out by themselves

Statistics (n = 12):

Distance from IPP

	Km's	Miles
10% -	0.47	0.29
20% -	0.54	0.34
30% -	0.61	0.38
40% -	0.72	0.45
50% -	0.95	0.60
60% -	1.16	0.73
70% -	1.51	0.94
80% -	1.89	1.18
90% -	2.27	1.42
100% -	2.65	1.66

Data adapted from Hill (1997)

Passive attraction methods are rarely successful and confinement is a low priority

Air scenting dog teams alongside rapid response teams

Thorough searching of high priority areas close to IPP - Urgent response needed

Sign cutting teams along main trails

Lost Person Behavior Checklist

"Child (7 – 12 years)"

Category Characteristics	Where?	How?

(Hill, Syrotuck):

Navigational and directional skills are much more developed than 1 – 6 year olds. They are learning to construct primitive 'mental maps' of their environments which may be highly inaccurate

Frequently become lost while attempting a short cut to a familiar location

May become lost during fantasy play – adventuring etc., and may find the play and reality confusing

They may become upset and confused when lost and react irrationally

Often resort to trail running which may take them some distance from the PLS/LKP

They may respond more maturely if with a friend or sibling

They will attempt to 'find themselves' though often lack adult tactics

(Hill, Syrotuck):

Tracks, trails, shortcuts – check with friends for any 'secret' places and/or favorite places, hideouts or routes

Landmarks, high points, features – ponds lakes. Steams, drainages, forest edges and clearings

Any 'known' places – secret play places

Statistics (n = 9):

Distance from IPP

	Km's	Miles
10% -	1.12	0.70
20% -	1.29	0.81
30% -	1.46	0.91
40% -	1.68	1.05
50% -	2.10	1.31
60% -	2.62	1.64
70% -	2.97	1.86
80% -	4.24	2.65
90% -	6.78	4.24
100% -	8.00	5.00

Data adapted from Hill (1997)

Confinement should be a high priority

Rapid response teams to high priority areas

Use air scenting dog teams

Passive attraction methods are rarely successful

Lost Person Behavior Checklist

"Youth (13 - 15 years)"

Category Characteristics	Where?	How?

(Hill, Syrotuck):

Navigational and directional skills ar e much mor e developed than 6 - 12 year olds.

Frequently become lost in gr oups whilst engaged in exploring or adventur e activity

They rar ely travel far in gr oups

Will usually respond to calls and whistles

Often resort to 'dir ection sampling', looking for a familiar place or landmark

They may r espond mor e maturely if with a friend or sibling

They will attempt to 'find themselves' though often lack adult tactics

May panic and r esort to irratio-nal tactics to locate themselves

(Hill, Syrotuck):

Tracks, trails, shortcuts – check with friends for any 'se-cr et' places and / or favorite places, hideouts or r outes

Landmarks, high points, fea-tures – ponds lakes. Steams, drainages, for est edges and clearings

Any 'known' places – secr et play places

Statistics (n = 20):

Distance from IPP

	Km's	Miles
10%	- 0.56	0.35
20%	- 0.72	0.45
30%	- 0.87	0.54
40%	- 1.13	0.71
50%	- 1.80	1.13
60%	- 2.68	1.68
70%	- 3.73	2.33
80%	- 4.82	3.00
90%	- 5.91	3.70
100%	- 7.00	4.38

Data adapted fr om Hill (1997)

Confinement a low priority un-less subject is alone

Rapid r esponse teams to high priority ar eas

Use air scenting dog teams

Passive attraction methods can be successful

Lost Person Behavior Checklist

"Despondents"

Category Characteristics	Where?	How?

(Hill, Syrotuck, Koester):

It is not usually their intention to travel far, but to find a place where they can be alone and possibly contemplate suicide

Frequently located at the interface of two types of terrain and/or vegetation boundary

Often head for a scenic location or well known beauty spot such as a hill which may overlook civilization

Sometimes these places are well known to them

Rarely found in dense underbrush or trees

They rarely respond to calls and whistles and may even hide and avoid searchers

There is an extremely high fatality rate – drugs and/or alcohol are frequently involved

(Hill, Syrotuck, Koester):

Scenic locations, high points overlooking beauty spots and/or civilization

Places well known to them, favorite places previously/frequently visited - Favorite walks, tracks, trails

Terrain interfaces – vegetation changes, breaks of slope, cliffs

Two distinct groups: (1) subjects merely seeking to get out of sight; (2) subjects seeking out a specific location, often scenic and/or significant in their life. This second group may travel long distances to get there. The first group will be close to IPP"

Statistics (n = 74):

Distance from IPP
	Km's	Miles
10%	- 0	0
20%	- 0.16	0.1
30%	- 0.16	0.1
40%	- 0.24	0.15
50%	- 0.32	0.2
60%	- 0.4	0.25
70%	- 1.2	0.75
80%	- 2.0	1.25
90%	- 6.4	4.0
100%	- 32.0	20.0

Data adapted from Koester, Personal Communication (2000)

Investigation important – speak with friends, family, work colleagues etc. to build an accurate subject profile

Response should be urgent

Thorough search of small area (upto 70%)

Confinement is a low priority

Passive tactics not successful

Lost Person Behavior Checklist
"Psychotics"

Category Characteristics	Where?	How?

(Koester):

May be evasive and run away and/or hide

Most do not respond to name

Rarely travel purposefully to an identifiable taget

Associated medication and/ or lack of it may be a problem

May be frightened of auther ity and of being found

Can be aggressive – be aware of safety of searchers – seek advice

Rarely 'lost' in the traditional sense of the word

Behavior may be dificult to predict

(Koester):

Tend not to penetrate woods and/or thick undegrowth

Often found in woods (edges) – 20%; buildings – 23%; along roads – 23%

Detailed checks of buildings in search area should be done by Police

Drainages, streams, tracks and trails

21% walked out

Statistics (n = 25):

Distance from IPP
	Km's	Miles
10% –	0	0
20% –	0.16	0.10
30% –	0.4	0.25
40% –	0.5	0.3
50% –	0.64	0.4
60% –	0.8	0.5
70% –	1.6	1.0
80% –	3.2	2.0
90% –	6.0	4.8
100% –	12.8	8.0

Data adapted fom Koester, Personal Communication (2000)

Search ugency high

Investigation is important – speak to any professionals involved as well as family and friends to build an accurate subject profile

Air scenting dogs around woods and drainages start- ing near to IPP

Containment along roads/ tracks a priority

Re-search areas and tracks

Use of trackers near to IPP

Cut for sign along roads and tracks

Detailed investigation essen- tial

Ongoing thorough system- atic search of buildings and residence

E

Lost Person Behavior Checklist

"Mentally Retarded"

Category Characteristics	Where?	How?

(Koester):

(Koester):

Blend of Young Children and Alzheimers – lack concept of being 'lost'

Good survivability

Rarely respond

Possible associated physical impairment

Rarely travel to a set target though often make for a random building to seek shelter

Will travel and penetrate into woods, forests and undergrowth

Subject may run away from and avoid searchers

Dense undergrowth, 11%, forest edges and will penetrate inside 16%, often to seek shelter

Buildings, (21%) yards, gardens (16%) and outbuildings

Not 'route' orientated

21% found in drainages

Statistics (n = 29):

Distance from IPP

	Km's	Miles
10%	- 0	0
20%	- 0.16	0.1
30%	- 0.3	0.2
40%	- 0.4	0.25
50%	- 0.8	0.5
60%	- 1.2	0.75
70%	- 1.6	1.0
80%	- 2.8	1.7
90%	- 4.8	3.0
100%	- 6.0	4.8

*Data adapted from Koester,
Personal Communication
(2000)*

Search urgency is high

Investigation is important – speak to any professionals involved as well as family and friends to build an accurate subject profile

Early deployment of air scenting dogs near to IPP

Detailed ground search of areas up to the 50% zone

Check any streams and drainages

Re-search of areas is important – plan for short search assignments

Use trackers from IPP

Cut for sign along roads and tracks

Lost Person Behavior Checklist

"Alzheimer's"

Category Characteristics	Where?	How?

(Koester):

This profile is based upon search subjects suffering from possible Alzheimer's disease and related disorders

Poor memory

Impaired ability to make sense of surroundings, and recognize hazards

May experience hallucinations or perceptual distortions

Loss occurs when subject leaves residence or nursing home, possibly with last sighting on a roadway

Previous history of wandering

Coexisting medical problems limiting mobility

Possibly looking for a private location in which to urinate

Will not cry out for help or respond to shouts

Will not leave many physical clues

Usually succumbs to the environment (hypothermia, dehydration)

(Koester):

50% are found within 0.6 miles of IPP; 96% are found within 1.5 miles of IPP

Usually found a short distance from a road

Usually found in a creek or drainage and/or caught in briars/bushes and often continue until they get stuck

May cross roads and/or trails, tracks

May attempt to travel to a place previously known to them

Statistics (n = 87):

Distance from IPP

		Km's	Miles
10%	-	0.16	0.1
20%	-	0.16	0.1
30%	-	0.4	0.25
40%	-	0.5	0.3
50%	-	0.8	0.5
60%	-	0.8	0.5
70%	-	1.1	0.7
80%	-	1.6	1.0
90%	-	2.0	1.25
100%	-	3.2	2.0

Data adapted from Koester (2000)

(Koester):

Search urgency is high

Early containment is essential

Early use of trackers at IPP

Early use of tracking dogs at IPP and along roadways

Early deployment of air scent dog teams in drainages and streams, starting nearest IPP

Early deployment of hasty ground teams into drainages and streams nearest IPP

Thoroughly search the residence/nursing home and surrounding grounds and buildings; repeat every few hours

Cut for sign along roadways

Search heavy briars/bushes

Search nearby previous home sites and the region between home sites and IPP

Lost Person Behavior Checklist

"Miscellaneous Adults"

Category Characteristics	Where?	How?

(Hill, Syrotuck):

This category includes mushroom / fruit pickers, photographers, rock hounds and generally people engaged in some outdoor occupational activity such as surveyors, forestry workers, conservation officers etc.

Often inadequately equipped and prepared for activity or the circumstances they find themselves in

Many subjects found away from trails and tracks

May panic on realization of situation

Poorly developed wayfinding skills and may not have map and compass

Attempts to 'find themselves' often exacerbate the situation

(Mitchell):

40-50% are adequately equipped

Cause is subject error

50% followed a trail or drainage at some time while missing

30-50% move at night

High percent are communicative

90% are found within five miles of IPP

(Hill, Syrotuck):

Frequently located near natural boundaries and vegetation interfaces – forest edge, stream, steep slope – and navigation aids – walls, fencelines, shelters etc.

Sometimes wander away from regular tracks and trails and become lost

Need to identify 'magnets' that may have attracted them

Statistics (n = 29):

<u>Distance from IPP</u>

	Km's	Miles
10%	0.39	0.24
20%	0.68	0.43
30%	0.98	0.61
40%	1.35	0.84
50%	2.05	1.28
60%	3.34	2.08
70%	3.77	2.36
80%	5.37	3.36
90%	8.60	5.38
100%	19.00	11.88

Data adapted from Hill (1997)

Investigation is especially important for this 'mixed bag' category

Through careful terrain analysis, need to identify relevant locations (magnets) which may have attracted the person

Rapid response teams and air scenting dogs to cover trails, tracks, streams, forest edges, fencelines, lines of least resistance etc.

Trackers and trailing dogs at PLS/LKP

E

Lost Person Behavior Checklist		

"Hikers"

Category Characteristics	Where?	How?

(Hill, Syrotuck):

They are trail oriented and often become lost when their trail becomes obscured or when they encounter a confusing junction or intersection of trails

They tend to travel further than other categories

Sometimes poorly prepared and lack experience of remote areas

Will attempt to find themselves by trail running or finding a high spot

May follow 'lines of least resistance' such as a stream, forest edge etc

May regress to less effective methods when panicky

May look for shelter at nightfall or if injured

(Hill, Syrotuck):

Tracks, trails, lines of least resistance forest edges (navigation aids)

Sheltered points

High ground – lookouts

Statistics (n = 24):

Distance from IPP

	Km's	Miles
10% -	0.87	0.54
20% -	1.21	0.76
30% -	1.55	0.97
40% -	1.93	1.21
50% -	2.33	1.46
60% -	2.74	1.71
70% -	3.14	1.96
80% -	5.64	3.53
90% -	10.87	6.80
100% -	24.00	15.0

Data adapted from Hill (1997)

Confinement a priority

Aerial survey to plot lines of least resistance, trails, navigation points and 'likely spots'

Check Route plans

Small, widely spaced, rapid response teams and air scenting dogs

Tracking dogs and trackers from IPP

Clue aware searchers tasked to run Trails

Be aware of potentially large distances and area that may be involved

Lost Person Behavior Checklist

"Hunters"

Category Characteristics	Where?	How?

(Hill, Syrotuck):

Their concentration on game often distracts them from navigation

Frequently become disoriented chasing wounded game into thick areas of trees or bush

They tend to overextend themselves in darkness and push beyond their physical abilities

When game laws prescribe the wearing of 'hunter orange', they can be easily detected from a distance or from a helicopter

Will respond to calls and whistles – may fire shots to attract searchers

May try to walk out unaided at daybreak after building shelter for the night

On average 1 in 3 walk out unharmed

High survivability rate

(Mitchell):

A common cause is subject error

Weather a factor in 18% of cases; Darkness a factor in 33% of cases

39% follow drainages

Significant number wanders and go cross-country

Many are communicative

66% found within two miles

(Hill, Syrotuck):

Trails, tracks and forest roads

Drainages, stream/river banks

Forest edges, clearings, points for shelter

Check local knowledge for favorite places and current conditions

Statistics (n = 100):

Distance from IPP

	Km's	Miles
10%	- 0.80	0.50
20%	- 1.28	0.80
30%	- 1.61	1.00
40%	- 1.94	1.21
50%	- 2.40	1.50
60%	- 3.09	1.93
70%	- 3.50	2.19
80%	- 5.00	3.13
90%	- 8.00	5.00
100%	- 19.31	12.07

Data adapted from Hill (1997)

Confinement is a priority

Thorough investigation (subject profile) is important

Aerial survey to plot tracks, trails, forest roads and any clearings

Attractive methods may be effective

Clue aware teams along trails and river banks

Small, rapid response groups to high priority areas

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Fishermen (Syrotuck)

- Generally, **they are very well oriented** because of the directional flow of a river or the position of a lake.
- The **reason they are overdue is most often accident related**, such as slipping into the water, falls over cliffs while trying to move up or down stream, or swept off of feet in fast moving water.
- A very high percentage of this mission category is boat related.
- **Often this will be a recovery mission.**

Climbers (Syrotuck)

- The individuals in this category are **generally well equipped and self sufficient.**
- They **tend to remain on or near designated routes.**
- A **primary factor for these incidents is weather or hazardous conditions** which limit an individual's abilities.
- Other major factors are falling debris and avalanche.
- **Technical expertise is generally needed** for both search and recovery.
- For backcountry mountaineers, the cause is often due to the climbers taking longer to complete the route than planned, or lower limb injuries on non-technical terrain.

Skiers (Mitchell)

- Cause is human error, weather (33%) or darkness (20%).
- Generally follow paths, trails, drainages; 25% attracted by civilization, .
- Almost all are communicative, 50% are mobile.
- 85% found within 5 miles of IPP.
- 83% are not moving after the first 24 hours; 30-45% move at night.
- 50% found by SAR effort using hasty search, visual tracking; 50% find themselves.