

Lost Person Behavior



Lost? Missing?

- Hiker underestimates time on trail, doesn't get home for dinner as planned, spouse calls 911.
- 82 year old with dementia wanders away from home.
- Hiker follows a game trail off trail into the woods.
- 4 year old wanders out of their home range
- Despondent parks their car and walks to a rocky overlook.

Lost

- You feel like:
 - You don't know where you are
 - You don't know how to get to where you want to be



© 2014 Attribution Share Alike Some rights reserved by Neil Willamson.



Response to being Lost

- Error at a decision point
- Fuzzy feeling that something isn't quite right
 - Denial
 - Early recognition of problem, more likely to backtrack.
- Panic Reaction
 - High Stress level
 - Reduced Performance at complex tasks (navigation)
- Anger to Bargaining to Acceptance
- Survival Strategy or Self Rescue Strategy

Behaviors (Ken Hill)

- random traveling
- direction traveling
- route sampling
- direction sampling
- view enhancement
- backtracking
- using folk wisdom
- staying put

Ineffective Strategies

- Discard Gear (75% injured or dead [n=4])
- Do Nothing (44% injured or dead)
- View Enhancing (33% injured or dead)
- Travel Cross Country (33% injured or dead)
- Wander (33% injured or dead)

Data from New Zealand Study



Strategies

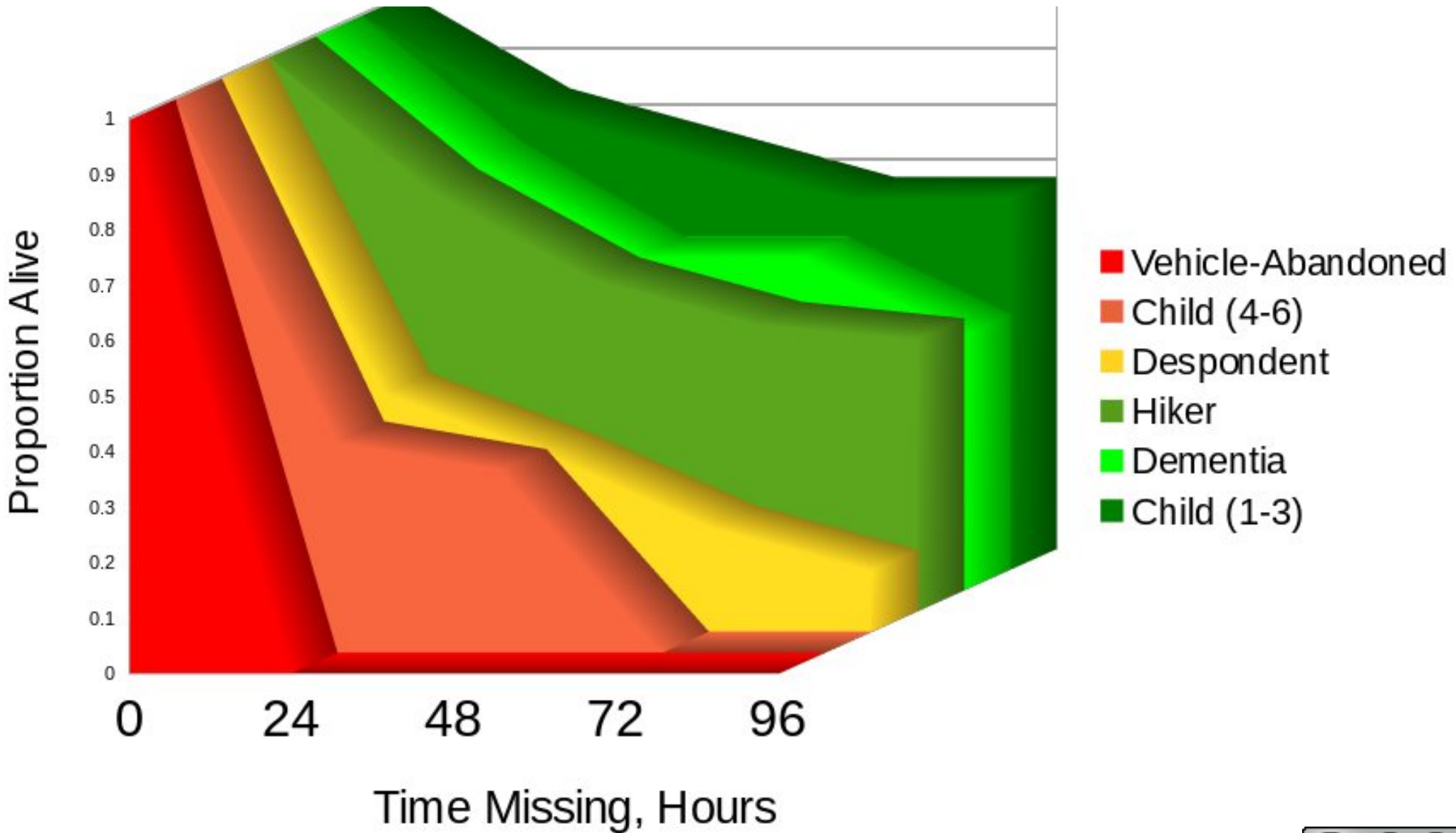
- Seek Shelter (8% injured or dead)
- Route or Direction Sampling (11% injured)
- Travel towards landmark (15% injured or dead)
- Backtracking (16% injured or dead)
- Staying Put (24% injured or dead)
- Following a travel aid (25% injured or dead)
- View or Cellphone signal enhancing

Data from New Zealand Study

Behaviors in Yosemite (74 cases)

- **Route Traveling** 41.9%
- Staying Put 25.7%
- Backtracking 16.2%
- Random Traveling 5.4%
- View Enhancing 4.1%
- Route Sampling 2.7%
- Direction Traveling 2.7%
- Doing Nothing 1.4%

Survivability



Factors Affecting Survivability

- Time
 - Most significant relationship
- Clothing, Equipment, Mental State, Fitness
 - Some relationship
- Experience, Survival Training
 - Minimal or no relationship

Lost Person Behavior Research

- 1973, Dennis Kelley: 308 cases, Colorado
- 1977, William Syrotuck: 229 cases, NY, WA
 - First subject categories
- 1985, Barry Mitchel: 3511 cases, CA, CO, East US
 - Regional differences
- 1986, Ken Hill – Behaviors when lost
- 1992, Robert Koester – Alzheimer's, VA
- 1997, Heth & Cornel – Dispersion
- 2011, Perkins, Roberts & Feeney: 1271 cases, UK
- 2012, Robert Koester: 16,863 cases ISRID

ISRID: International Search & Rescue Incident Database



- Global Data Set
- Compiled by Robert Koester
- Initial 2002 funding from USDA
- 2008 (Lost Person Behavior book): 31,100 cases
- 42 Behavior Categories
- 2014 > 60,000 cases
- 2017 > 145,000 cases

Statistically observed behaviors

All differ among categories

- Distance from IPP to Find
- Travel Uphill or Downhill
- Time mobile (generally hours)
- Where found (structures, brush, woods, etc)
- Distance found from Roads/Tracks

Behaviors and Search Tactics

- Active or passive tactics?
- Call the Subject's Name?
- Where to search
 - Where to put field searchers?
 - Where do the field searchers look in their segment/route?
 - Investigative directions to elicit planning data.
- Decision points (map and field)

Some Categories

- Child 1-3
- Child 10-12
- Autism Spectrum Disorder
- Dementia/Alzheimer's
- Despondent
- Hiker
- Hunter
- Abduction

Child (1-3)



- Tend to be very close to the IPP
- Tend to shelter/hide in structures, brush, inside logs – look anywhere they can fit.
- Check anywhere they may fit within abandoned vehicles.
- Often drawn to animals or water.
- Can sleep through loud noises.



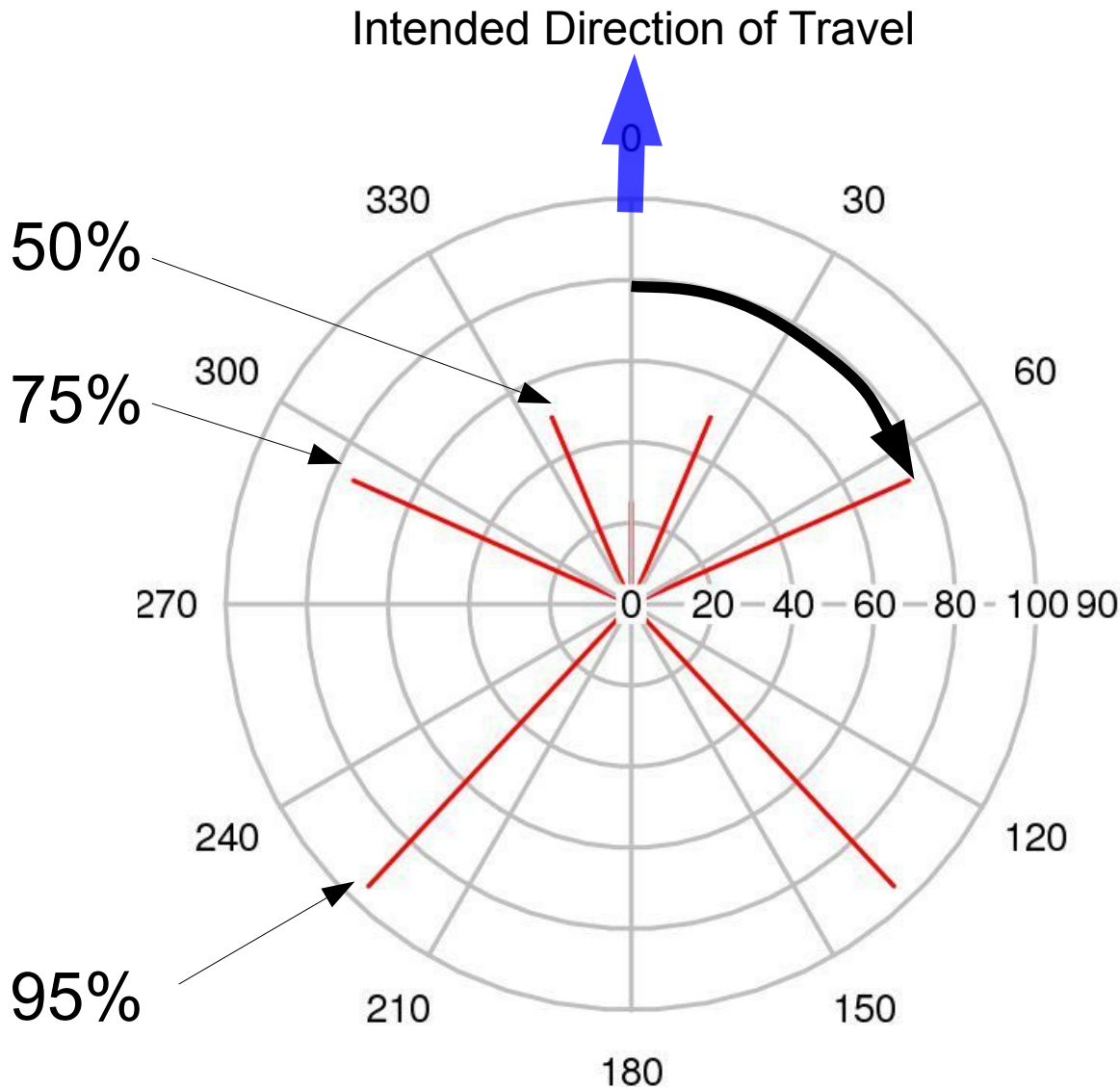
Check Vehicles



Check Structures



Dispersion Angle: Child (1-6)



75% are within
66 degrees of
the intended
direction of travel

Check Structures (Temperate)

- Mental Retardation: 34%
- Child (1-3): 29%
- Child (4-6): 29%
- Child (7-9): 29%
- Child (10-12): 29%
- Abduction: 29%
- Despondent: 26%
- Child (13-15): 25%
- Worker: 25%



Check Structures (Urban)

- Child (13-15): 80%
- Mental Retardation 57%
- Child (4-6): 56%
- Child (7-9): 56%
- Child (10-12): 56%
- Child (1-3): 50%
- Despondent: 47%
- Dementia: 35%
- Hiker: 24%



Less often found in structures

- Dementia: 20%
- Mountain Biker: 14%
- Snowmobiler: 14%
- Hiker: 13%
- Hunter: 8%
- Runner: No cases (small sample size)
- Skier – Nordic: No cases (small sample size)

Child (10-12)



Child (10-12)

- Often adventuring, exploring, fantasy play,
- Often take shortcuts.
- Often make mistakes at decision points.
- May be well outside home range.
- Signcut and evaluate field decision points.
- Check anywhere they may fit within abandoned vehicles.

Substance Abuse



Substance Abuse

- Often investigative finds (29%)
- Very high mortality rate (42% Urban)
- Typically poorly dressed for the weather
- Point last seen often a bar or party, subject leaving on foot
- **Often drawn to water**

Autism Spectrum Disorder

- **Attracted to lights, water, reflections**
- May be attracted to animals, transportation.
- May have catastrophic reaction if overstimulated.
- Often in structures.
- Very unlikely to respond to searchers.

Dementia

- Stop moving within hours
- Very unlikely to respond to searchers calling their name
- Tend to leave few clues other than sign
- Often in drainages, creeks, or brush
- May be stuck in dense brush.
 - **Keep going until they get stuck**
- Tend to leave or cross roads
- May have catastrophic reaction

Dementia

- IPP is residence or nursing home
- Oriented to the past
 - May attempt to travel to former place of work
 - May attempt to travel to former home
- May have wandered before
- May use public transportation
- **Look for decision points where the route turns but the subject could have kept going straight.**



Effects of Dementia on Navigation

- Short term memory problems Can't see or recall Landmarks
- Reduction in Peripheral Vision
- Difficulty judging passage of time Can't estimate Distances
- Reduced visual-spatial skills Poor sense of Direction



LOST



They go until
they get stuck

How Far?

North East, less than 1000 feet relief:
Temperate Flat

175 cases (global – dementia, temperate flat)

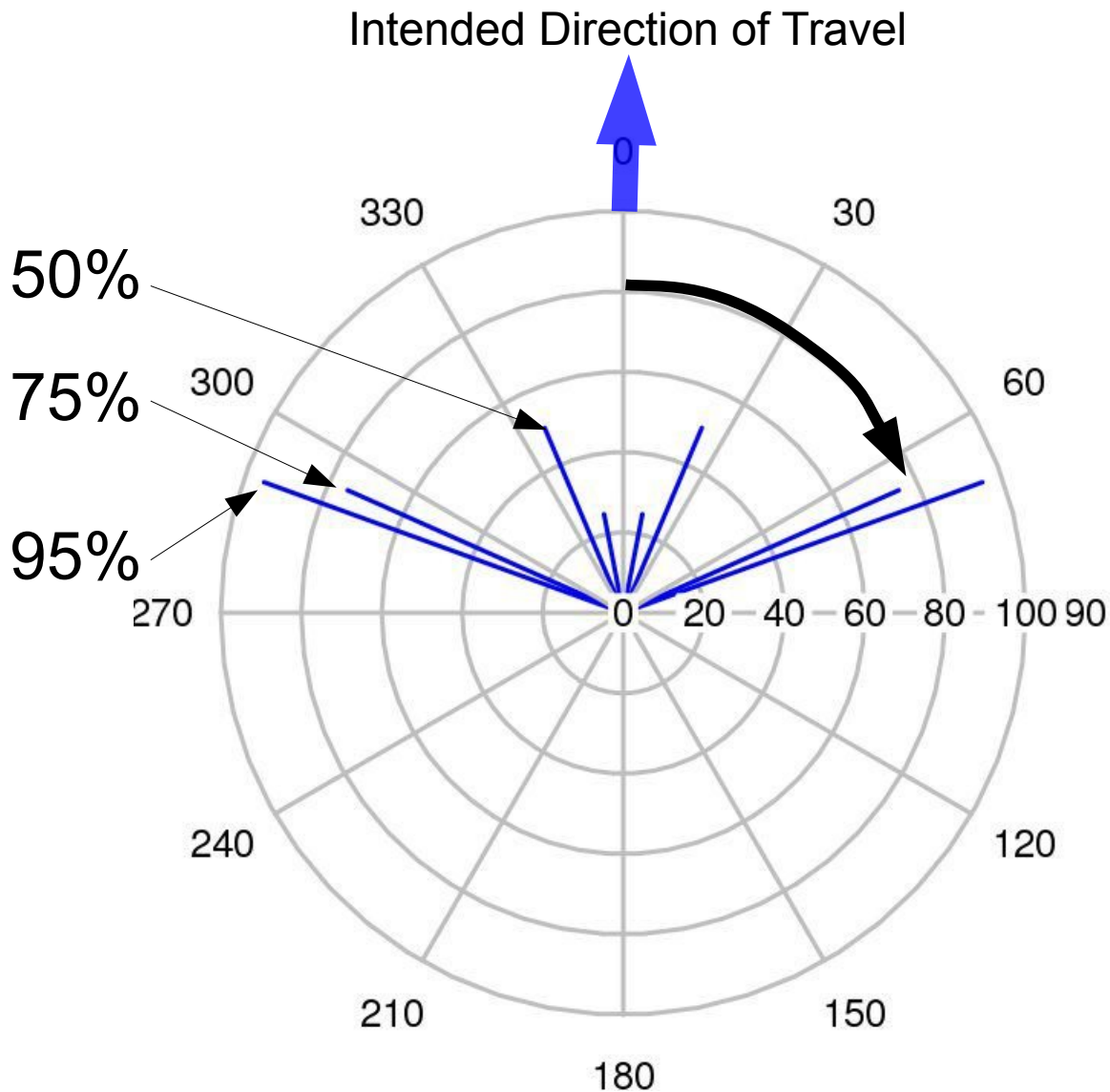
25% within 0.2 miles

50% within 0.6 miles

75% within 1.5 miles

95% within 7.9 miles

Direction of travel is strong predictor



Dementia:
75% are found
within 66
degrees of
the intended
direction of travel

Despondent



Find Location

- Temperate
 - Structure (26%)
 - Woods (25%)
 - Water (15%)
- Urban
 - Structure (47%)
 - Water (19%)

Most likely:

On a trail, path, or at their destination.

Survivors often in structures.

Often at interface between terrains.

Rarely in Brush

Seldom respond to searchers.

Two Patterns

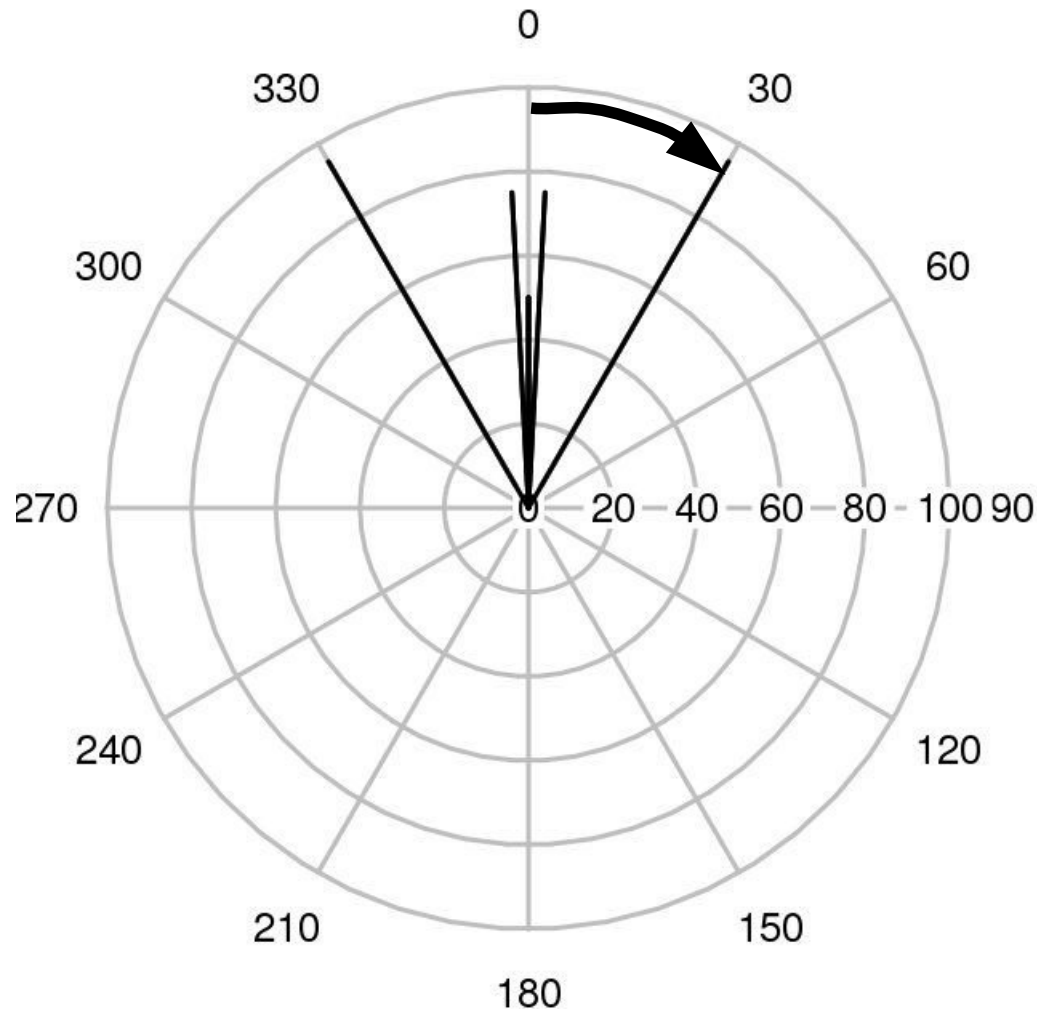
- Get Just out of Sight
 - Urban 50% within 100 meters of IPP
 - Often at urban/rural interface or at treeline
- Travel to Scenic or Significant (to them) Location
 - Viewpoints
 - Just out of sight at that destination

Temperate less than 1000 feet relief: 50% within 0.7 miles of IPP

Temperate more than 1000 feet relief: 50% within 0.5 miles of IPP

Urban, 50% within 0.5 miles of IPP

Dispersion Angle: Despondent



95% within
30 degrees
of intended
direction
of travel

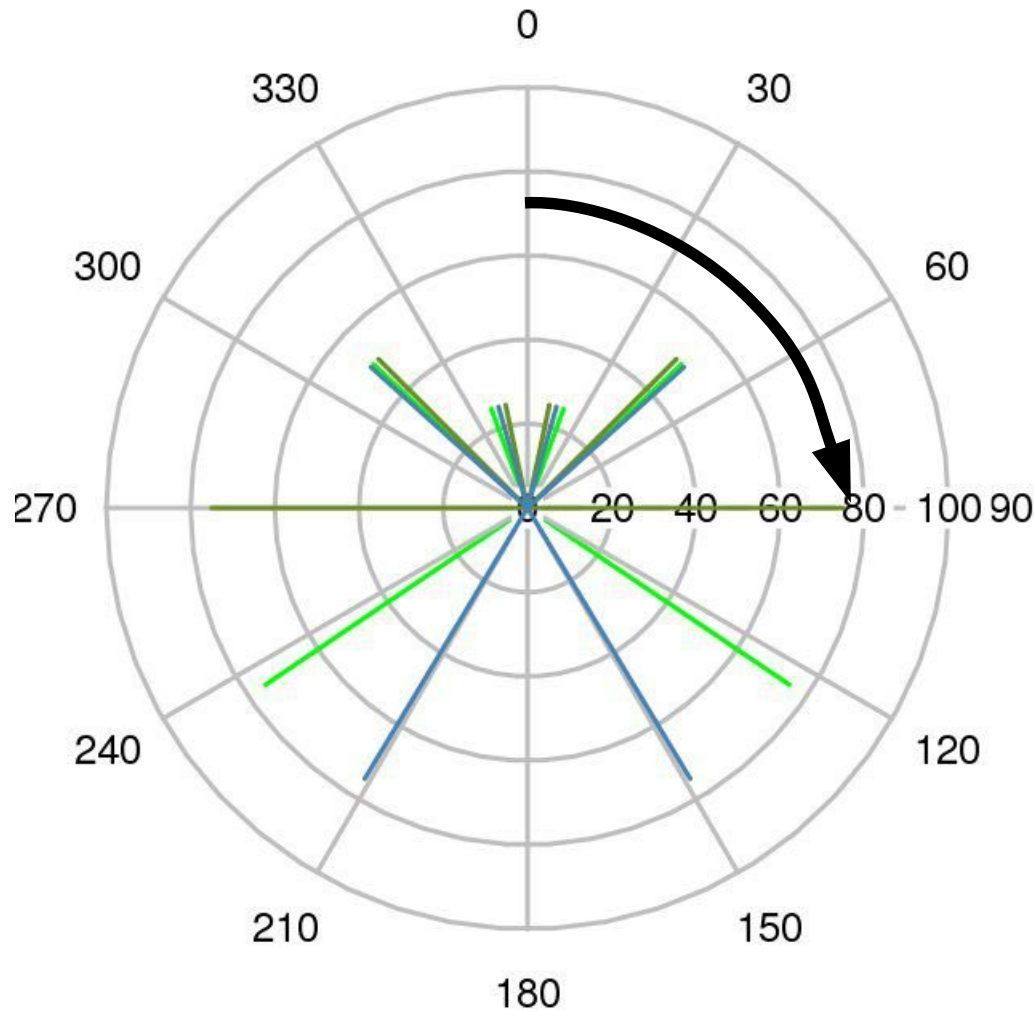
Hunter



Hunter

- Mostly (70%) Lost
 - May be focused on game, not navigation.
- Often travel at night (40 to 80%)
- Likely to follow a self rescue strategy
- May be comfortable sheltering overnight
 - Particularly older and more experienced hunters
- Follow both linear features and terrain.
- Type of hunter (Bow/Shotgun/Rifle) and game (Deer, Wildfowl, Bear, etc) very important.

Dispersion Angle (Hunter, Nordic Skier, Snowmobile, Hiker-dry)



Hunter:
75% within
175 degrees
of intended
direction
of travel

Intended direction of travel is poor predictor of find location.

Hikers

Primarily Navigate by Following Trails

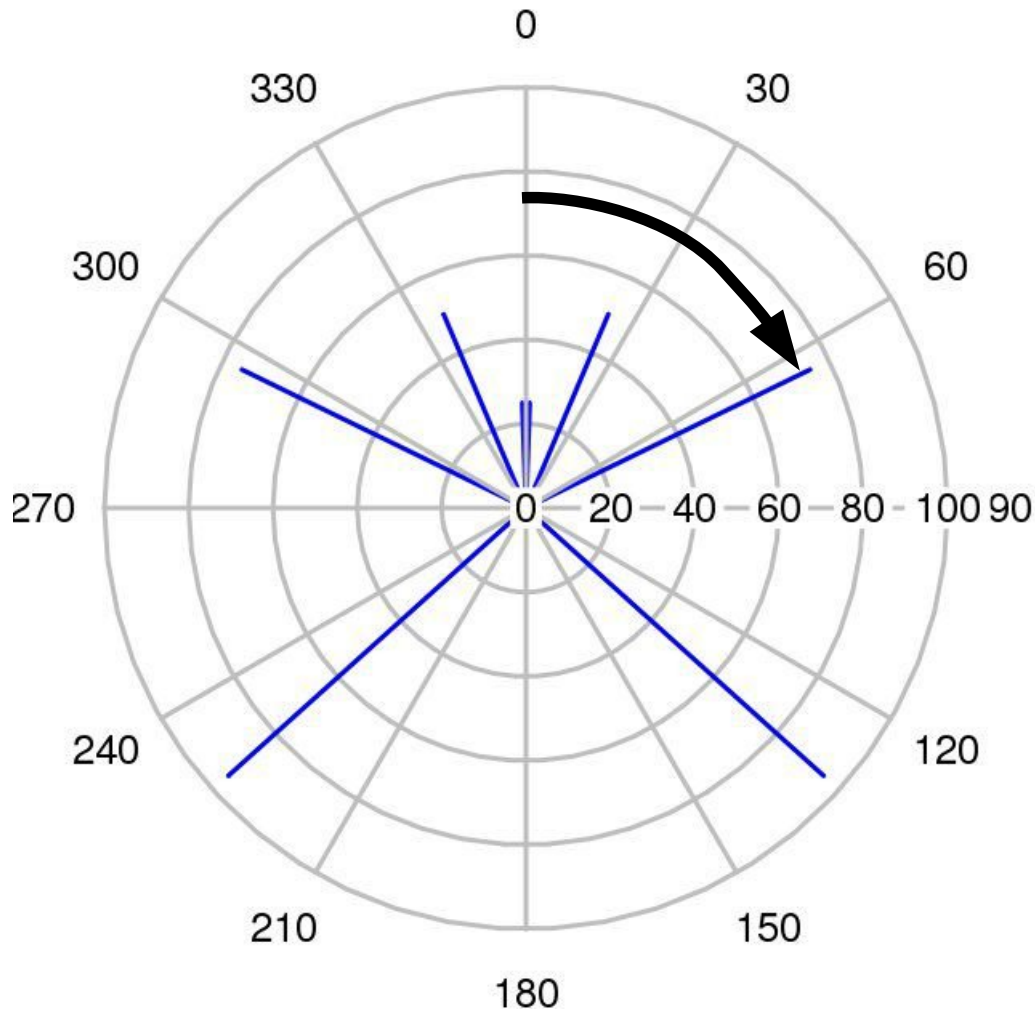


Hiker

- Tend to be on or close to trails or linear features
 - Off trail, often follow terrain onto linear features
- Mostly (68%) Lost
 - Errors at decision points
 - Errors where trails are obscure (field decision points)
 - Leaving trail for game trail
 - Leaving trail for herd path
 - Leaving trail to cut switchbacks
 - Taking wrong direction on trail
- Some (16%) Overdue, errors in estimating time or physical fitness
- Often (30 to 40%) travel at night



Dispersion Angle: Hiker



Hiker:
75% within
64 degrees
of intended
direction
of travel
(Temperate)

Intended direction of travel is moderate predictor of find location.

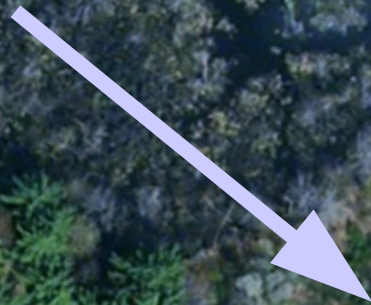
Abduction

- Red Flags
 - White Female, age 5-12
 - Missing from a familiar location
 - Hasn't done this before (no history of running away)
 - No explanation for disappearance
- Rapid Law Enforcement Response is Critical
- Only 16% are found alive

Multiple Crime Scenes

- PLS
- Initial contact site
- Assault site
- Murder site
- Dump site
 - Body likely to be concealed
 - Likely to be in a different jurisdiction from the PLS.
50% are within 10 miles of PLS.

Potential Dump Site
Turnoff, near water, near main road,
downhill, out of sight.



Dump Site

- Turnoff – within 1/2 mile of a junction
- Near a main road
- Vehicle Access – within 300 feet of vehicle
- Near water or in the water
- Downhill (if there is a slope)
- Remote location: Out of sight

Some Other Categories

- Climbers (day climbers, mountaineers)
 - Weather, hazards often involved.
- Gatherers
 - Typically looking for a very specific habitat
- Mental Illness
 - Often Evade Searchers – May attack Searchers
- Camper (Car Camper)
 - Poorly marked trails near campground
 - Often overdue

Distances of Find from Linear Features (50% distance)

- **Autistic** : **15 meters**
- **Dementia:** **15 meters**
- **Mental Retardation:** **15 meters**
- **Despondent:** 50 meters
- **Hiker:** 100 meters
- **Hunter:** 100 meters
- **Worker:** 2500 meters (small number of cases)

Approaching the Subject

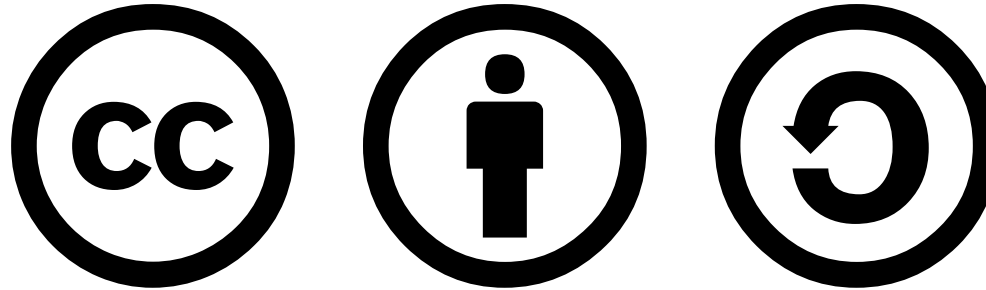
Particularly autistic and dementia:

- **May have catastrophic reaction**
- Simplify the environment
 - Reduce noise, turn down radios, etc.
- Approach from the front
- Make eye contact
- Ask simple direct questions.

Learning More:

- Robert Koester's Book: "Lost Person Behavior."
- Robert Koester's Lost Person Behavior course.

The material in this unit draws heavily from the writings of Robert Koester. His research and teaching in the field of Lost Person Behavior is very gratefully acknowledged.



This presentation Copyright © 2014 Paul J. Morris Some Rights Reserved.

This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License. This material may be freely reproduced and used under the terms of the Creative Commons Attribution-ShareAlike License.

This presentation includes images that have been made available under CC-BY and CC-BY-SA licenses, and material from the public domain. Attributions are noted on individual slides. These contributions to the commons are very gratefully acknowledged.