



The U.K. Missing Person Behaviour Study

January 2004

by

Dave Perkins & Pete Roberts
Northumberland National Park SRT
The Centre for Search Research

and

Ged Feeney
Penrith MRT
Mountain Rescue Council (England & Wales) Statistics Officer

Abstract

This report seeks to provide information to help with search management.

Until recently, the majority of the information available about missing person behaviour was derived from incidents in North America. To redress the balance, in 2000 the MRC started collecting data specifically for that purpose from MR teams and other organisations in UK, N. Ireland and Eire.

The data is collected using a standard form to report incidents involving searches for missing persons. The volume of data grows continuously; this is the third annual report to come out of it. There is, however, still only sufficient data to be able to report on seven of the twelve categories of missing person identified by the reporting system.

The report seeks to inform those persons who have contributed to the study and to encourage others to join in this important work.

Document History

Interim Report - November 2001

Full Report - September 2002

Full Report - January 2004

Further copies of these documents can be downloaded from:-

<http://www.mountain.rescue.org.uk/stats.html>

<http://www.searchresearch.org.uk/ukmpbs.html>

Contents

Background	.....	3
Reporting the Results	.....	3
Statistical Significance	.....	5
General Comments	.....	5
Reports:		
Child (7 to 12)	partial report	8
	Gender Differences.....	9
	Terrain Differences.....	10
Despondents	full report	11
	Gender Differences.....	13
	Terrain Differences.....	14
	Terrain Differences for males.....	17
	Terrain Differences for females.....	20
	Differences in Outcome and Distance travelled.....	23
Hiker / walker	full report	25
	Gender Differences.....	27
	Terrain Differences.....	30
Miscellaneous	partial report	33
Organised party	limited report.....	35
Vulnerables	full report	37
	Gender Differences.....	39
	Terrain Differences.....	41
	Terrain Differences for males.....	43
	Terrain Differences for females.....	45
Youth (13 to 16)	partial report	48
Categories not reported	.....	50
Concluding Comments	.....	50
Appendix 1 - Missing Person Behaviour Study - Definitions.....		51
Appendix 2 - Statistical Significance and Reliability of Information.....		53

MISSING PERSON BEHAVIOUR STATISTICS FOR THE UNITED KINGDOM - JANUARY 2004

by Dave Perkins & Pete Roberts (Northumberland National Park SRT, The Centre for Search Research) and Ged Feeney (Penrith MRT, MRC Incident Statistics Officer)

BACKGROUND

Since the MRC conference at Lancaster in October 2000, teams have been offered the opportunity to fill in an extra sheet each time they send in an MRC Incident Report, either electronically or on paper. This extra sheet is the MRC Missing Person Behaviour Report. It is used to collect information relating to incidents taking place within the UK, N. Ireland and Eire to add to the Missing Person database.

The ideas behind Missing Person Behaviour Statistics and their use as a management tool have been around since the late 1970s. Until now, however, a criticism regularly aired in the UK has been that all of the available information is based on incidents that took place on the North American continent. This is an attempt to overcome that criticism.

The authors recommend that this study is read in conjunction with 'An Aide to the Search Manager'. Copies can be obtained from the MRC and the Centre for Search Research web sites (see page 2).

REPORTING THE RESULTS

Missing Person Behaviour Statistics tell us what similar people have done in similar situations in the past. They enable us to construct meaningful scenarios in our attempt to find the person that we are currently looking for. The level of confidence that the user has in these scenarios should reflect the volume of data from which the statistics are derived (the sample sizes). Users should have more confidence therefore in scenarios based on the statistics in this report for a missing despondent (sample size 198) than they should for a missing organised party (sample size 14).

The authors feel that it is wrong therefore to publish the results in all of the categories in exactly the same way - the level of reporting should reflect the sample size. We believe that categories with a large sample should be reported in detail; categories with a modest sample size should be given a limited report; categories with a very small sample size should not be reported at all. In this report therefore, for sample sizes greater than 50, a full report will be given; for those between 21 and 50 (inclusive), a partial report will be give and for samples between 11 and 20 (inclusive), the report will be limited.

The table below shows how many people were reported as lost or missing in each of the twelve categories and the level of reporting that each category is given in this document. The makeup of the categories is described in Appendix 1 - Missing Person Behaviour Study Definitions.

Category	number of persons [sample size]	level of reporting
child 1 to 6	9	not reported
child 7 to 12	30	partial report and comparison of sub-categories
climber	2	not reported
despondent	198	full report and comparison of sub-categories
fell runner	3	not reported
hiker / walker	77	full report and comparison of sub-categories
miscellaneous	30	partial report
mountain biker	2	not reported
organised party	14	limited report
skier	0	not reported
vulnerables	168	full report and comparison of sub-categories
youth 13 to 16	21	partial report

Table 1 - numbers of reported incidents, all categories, to Nov 2003

The report will confine itself to three areas that lend themselves to straight-forward analysis; these are:-

- condition if located
- location where found
- distance from the Initial Planning Point (IPP)

For data sets greater than 50 cases, summary statistics for condition and location will be given. The information about the distance from the IPP will be presented as deciles (every tenth percentile) with a cumulative distribution chart for interpolation purposes.

For data sets greater than 20 but not greater than 50, summary statistics for outcome and location will be given. The distance from the IPP will be presented every twentieth percentile and a cumulative distribution chart. The authors do not advise its use for interpolation.

For data sets greater than 10 but not greater than 20, summary statistics for outcome and location are given but distance from the IPP is recorded as quartiles (every 25th percentile) with no chart.

In addition, in those cases where there is sufficient data (above about 30 reported cases) there will be some analysis within the category, if appropriate; this is referred to as the analysis of sub-categories, for example the sub-categories male despondents and female despondents within the category despondent. Sub-categories form mutually exclusive pairs, and some statistical comparison of these is generally undertaken.

STATISTICAL SIGNIFICANCE

(The reader is advised to read Appendix 2 for a detailed explanation of the way the authors have tried to avoid too much jargon and technical language.)

The objective from the start was not only to report on how the missing persons in each category behaved but also to attempt to attach some kind of statement of statistical significance to the results, particularly with regard to sub-categories. This is possibly the first time that this has been done in reporting Missing Person Behaviour statistics. For example a comparison of incidents in urban and non-urban areas involving missing despondents (table 13) shows that although approximately the same percentage are dead when found, the proportions found injured (2% and 15%), unhurt (57% and 40%) and not found at all (6% and 12%) are quite different. Statistical tests show that differences like these are extremely unlikely to have occurred by chance. This is an example of a 'significant' result.

GENERAL COMMENTS

1. This is the first year in which the missing person's gender has been recorded or added to existing records. This has proved to be a valuable addition.
2. Overall statistics that would otherwise not get mentioned and that may be of interest are as follows:

Gender	n	%
Male	330	60
Female	143	26
Not recorded	70	13
Mixed group	11	2
Total	554	

Table 2 - subjects by gender, all records

Condition	n	%
Unhurt	347	63
Fatality	125	23
Injured	50	9
No trace	32	6
Total	554	

Table 3 - subject condition when located, all records

3. There are probably many more incidents involving missing persons than are recorded here. The vast majority are dealt with by the police and do not involve any of the organisations that report their incidents to the MRC. Until such time as there is a more comprehensive system for collecting the appropriate data, the user will need to do the same as we do in assuming that the behaviour of those individuals who do get reported is representative of the population as a whole.
4. The distribution of incidents between the various categories of missing person remains more or less the same from year to year; in particular the two most

frequently occurring categories [despondents, 198 incidents and vulnerables, 168 incidents] account for 66% of all recorded incidents, which is exactly the same as in the previous two reports. No explanation is offered for this.

REPORTS

Child (7 to 12), all searches [n = 30]

- a. **Description** - this category covers children whose chronological age is at least 7 years but not greater than 12 years.
- b. **Outcome** - condition if found

	n	%
fatality	2	7
injured	0	0
unhurt	28	93
No trace	0	0

Table 4 -child (7 to 12), outcomes, all searches

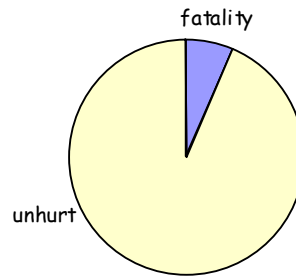


Chart 4 : Child (7 to 12) - Outcome

- c. **Location found**

	n	%
Habitation	10	34
Building / shelter	6	21
Road	6	21
Open ground	3	10
Water / water's edge	3	10
Forest / woodland	1	3
Forest edge / clearing	0	0
Path / track	0	0
Stream / ditch	0	0
Wall / fence line	0	0
No trace	0	0

Table 5 - child (7 to 12), location, all searches

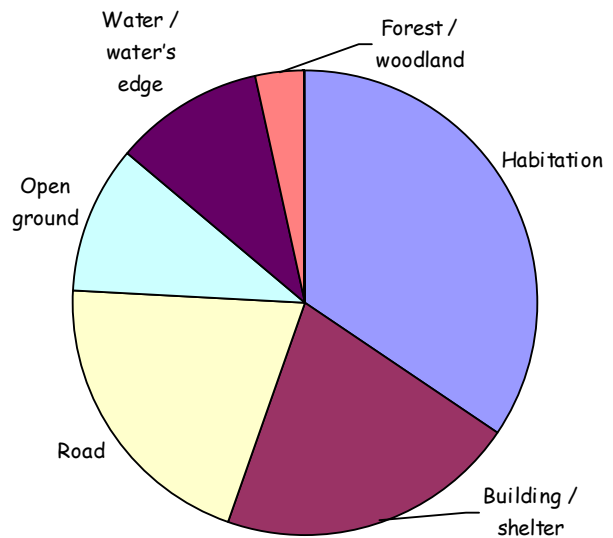


Chart 5: Child (7 to 12) - Location

d. **Distance** found from IPP

Percentile	kms
20	0.1
40	0.7
60	1.8
80	3.9
100	64.4

Table 6 - child (7 to 12), distances, all searches

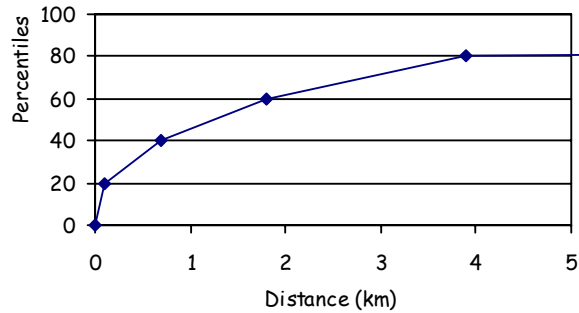


Diagram 6: Child (7 to 12) - Distance

Note: the penultimate distance was 8.6 kms and the one prior to that was 6.0 kms.

Child (7 to 12) - Gender Differences

Comparison of males [n=18] v females [n=10]

There were no significant differences for the condition if found and the location of find between the genders. For this information, use tables 4 and 5. However, the differences between the two sets of values for distances found from the IPP were extremely unlikely to have occurred by chance; females were found further from the IPP than males.

percentile	Female (kms)	Male (kms)
25	0.3	0.05
50	3.0	0.8
75	7.3	2.0
100	64.4	4.8

Table 7 - child (7 to 12), distances by gender

Child (7 to 12) - Terrain Differences

Comparison of urban [n=19] v non-urban [n=11]

There were no significant differences for the condition if found and the distances travelled from IPP between urban and non-urban 7 to 12 year olds. For this information, use tables 4 and 6. However, the comparison of locations found showed that urban 7 to 12 year olds were more likely to be found in locations described as habitations or building / shelter than non-urban 7 to 12 year olds, and that the difference between the two groups was extremely unlikely to have occurred by chance.

Location found	urban	non-urban
building / shelter or habitation	14	2
other locations	4	9

Table 8 - Child (7 to 12), location - urban v non-urban

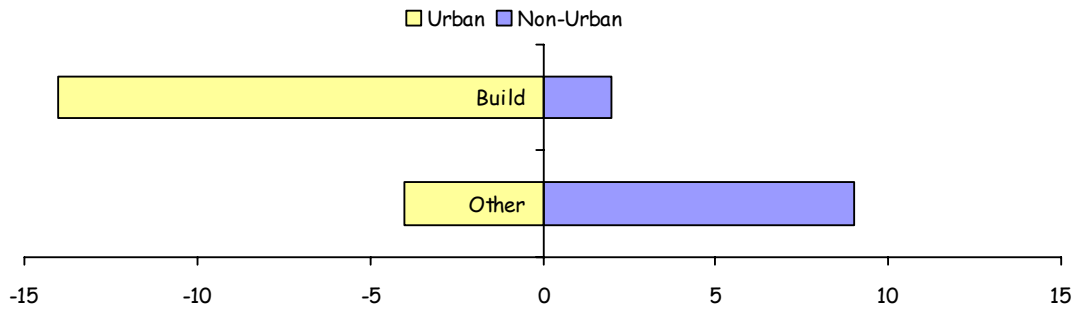


Chart 8: Child (7-12) Location found - Urban v Non-Urban

Despondents, all searches [n = 198]

a. **Description** of category - the category despondent has been used where there is evidence that the subject has deliberately disappeared as a result of clinical depression or intent to harm himself or herself.

b. **Outcome** - condition if found

	n	%
fatality	67	34
injured	23	12
unhurt	88	44
no trace	20	10

Table 9 - despondent, outcomes, all searches

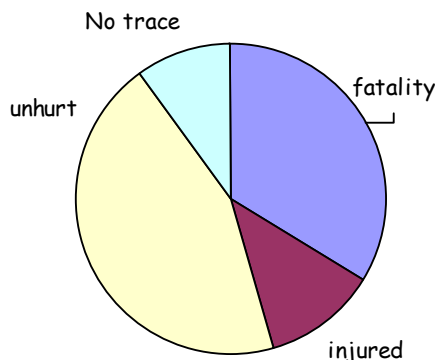


Chart 9 : Despondent - Outcome

The differences between despondents and non-despondents with regard to the high proportion of fatalities and low proportion of subjects located unhurt are extremely unlikely to have occurred by chance [compare the percentages in the table with the equivalent percentages for non-despondents: fatalities 16%, unhurt 73%].

c. **Location** found

	n	%
Habitation	36	18
Water / water's edge	31	16
Forest / woodland	28	14
Buildings / shelter	23	12
No trace	20	10
Road	19	10
Open ground	14	7
Forest edge / clearing	10	5
Stream / ditch	7	4
Path / track	5	3
Wall / fence line	2	1

Table 10 - despondent, location - all searches

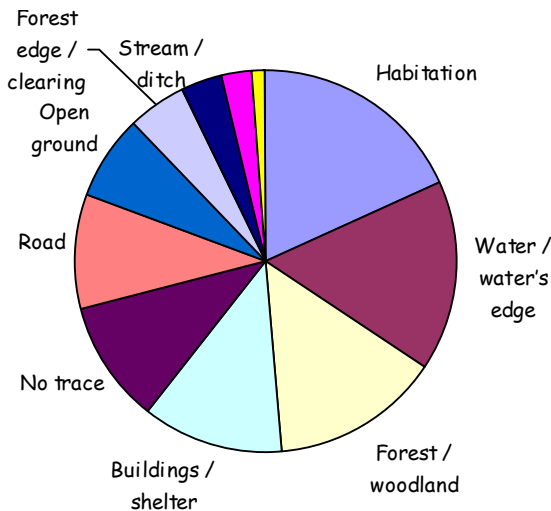


Chart 10: Despondent - Location

d. **Distance** found from IPP

percentile	kms
10	0.0
20	0.2
30	0.5
40	0.7
50	1.0
60	1.5
70	2.9
80	6.5
90	15.2
100	120.0

Table 11 - distances travelled from IPP, despondents, all searches

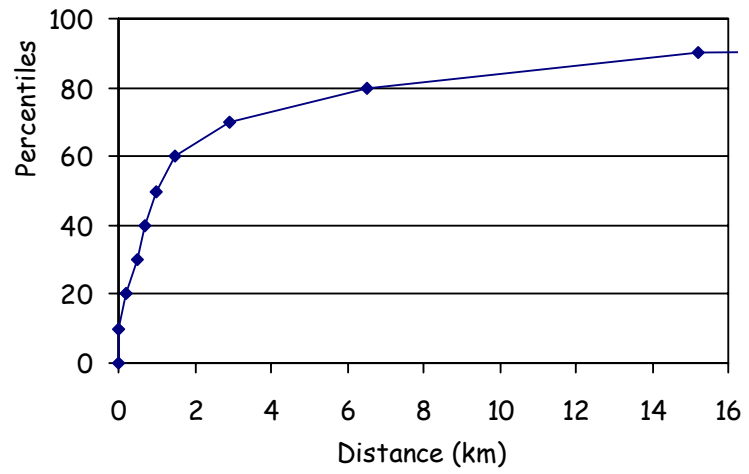


Diagram 11: Despondent - Distance

Note: the 85th percentile value is 6.9 kms.

Despondents - Gender Differences

Comparison of males [n=125] v females [n=54]

There were no significant differences for the condition if found and the distances travelled from IPP between the genders; for these use the information for all searches, tables 9 and 11. However, the difference between the two sets of locations at which the person was found was sufficiently large for it to have been very unlikely to have occurred by chance. Further examination shows that the difference is more to do with the relative frequencies rather than the 'popularity' of particular types of location; for example the four most frequently occurring locations are the same for both genders; however, while these 'top four' locations account for 80% of all recorded female despondents they account for only 60% of all recorded male despondents. These top four locations and the percentages of males and females found in those locations are:

rank	location	% female	% male
1	habitation	25	20
2	forest / woodland	23	15
3	water / water's edge	17	13
4	building / shelter	15	13

Table 12 - location of find, despondents, by gender

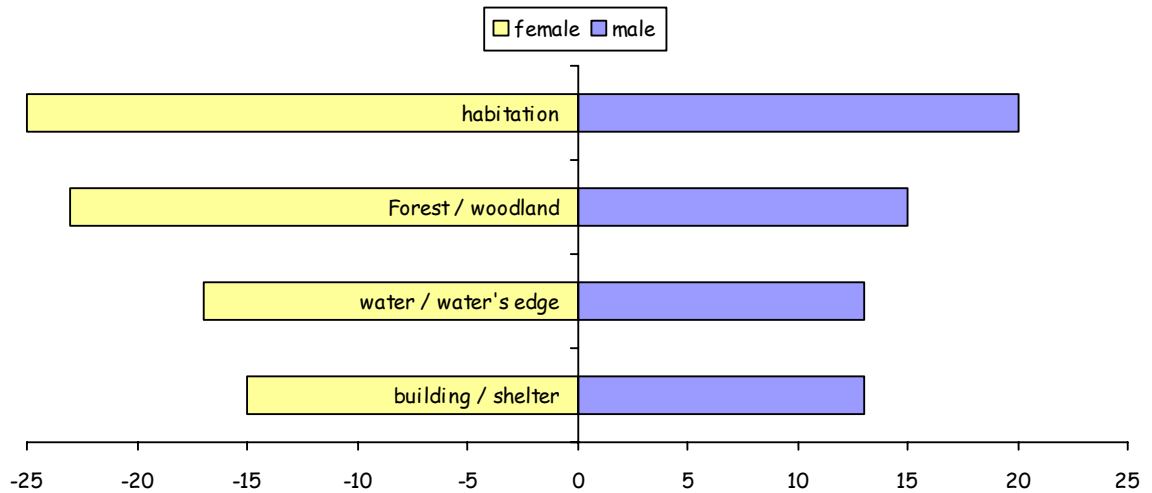


Chart 12: despondent, location by gender (%)

Despondents - Terrain Differences

Comparison of urban [n=54] v non-urban [n=144]

a. **Outcome** - condition if found

	urban		non-urban	
	n	%	n	%
fatality	19	35	48	33
injured	1	2	22	15
unhurt	31	57	57	40
no trace	3	6	17	12

Table 13 - despondents, outcome - urban v non-urban

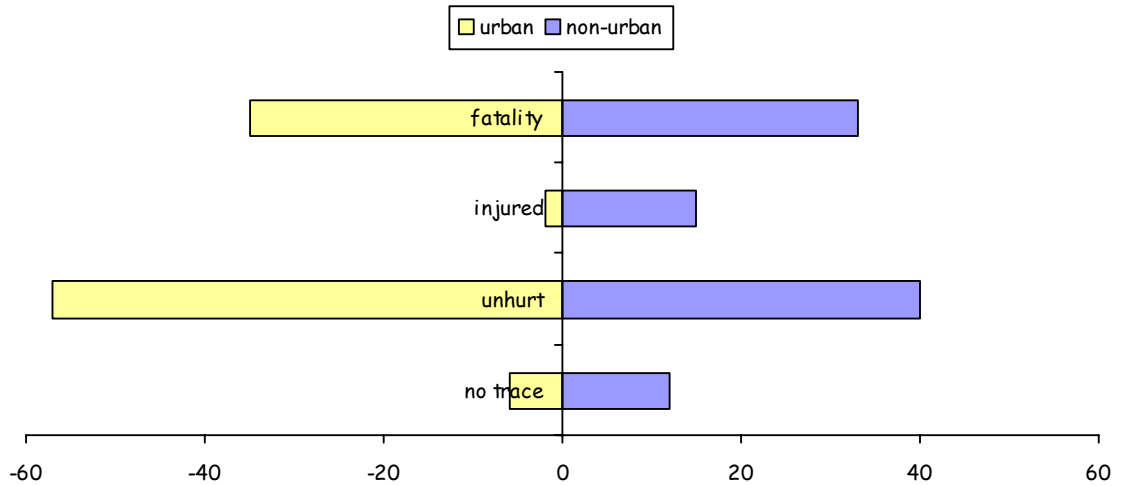


Chart 13: despondent - Outcomes, urban v non-urban (%)

These differences are extremely unlikely to have occurred by chance; note that while the proportion of fatalities is more or less the same between the two groups, the proportions of the other outcomes, in particular 'injured', are quite different.

b. Location found

rank	urban	n	%	non-urban	n	%
1	habitation	16	30	forest / woodland	26	18
2	water / water's edge	12	23	habitation	20	14
3	building / shelter	7	13	water / water's edge	19	13
4	open ground	4	8	no trace	17	12
5	road	4	8	building / shelter	16	11
6	forest edge / clearing	3	6	road	15	11
7	no trace	3	6	open ground	10	7
8	forest / woodland	2	4	forest edge / clearing	7	5
9	path / track	1	2	stream / ditch	7	5
10	wall / fence line	1	2	path / track	4	3
11	stream / ditch	0	0	wall / fence line	1	1

Table 14 - despondents, location, urban v non-urban

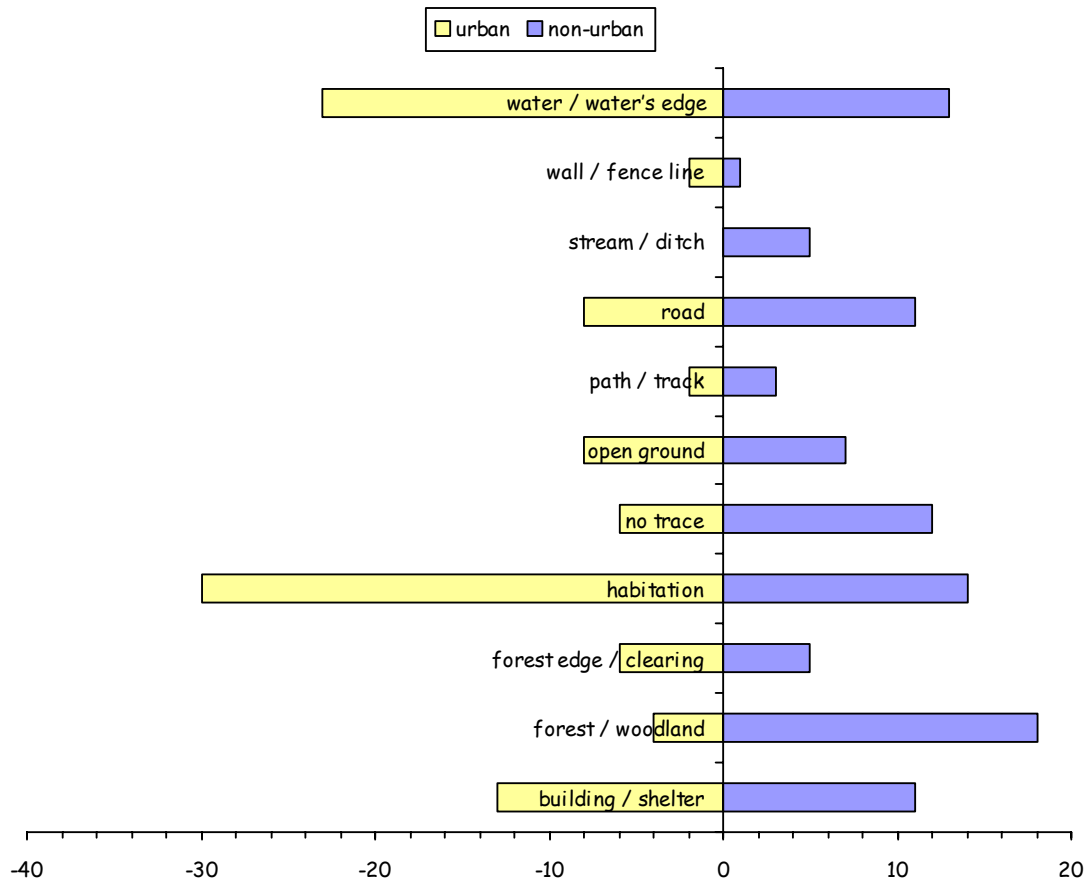


Chart 14: despondent, location, urban v non-urban (%)

These differences are extremely unlikely to have occurred by chance, and perhaps reflect nothing more than the opportunities offered for concealment in the urban and non-urban environments.

c. Distances from the IPP

percentile	urban incidents kms	non-urban incidents kms
10	0	0.1
20	0.0	0.4
30	0.1	0.5
40	0.2	1.0
50	0.5	1.2
60	0.9	2.0
70	1.1	3.6
80	2.0	8.5
90	4.9	17.7
100	32	120

Table 15 - distance from IPP, despondents, urban v non-urban

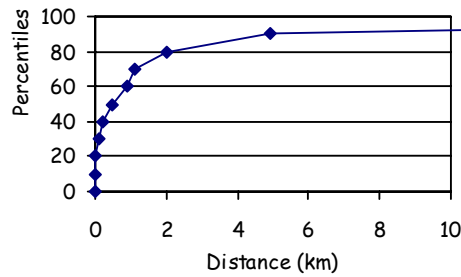


Chart 15a: Distance - urban

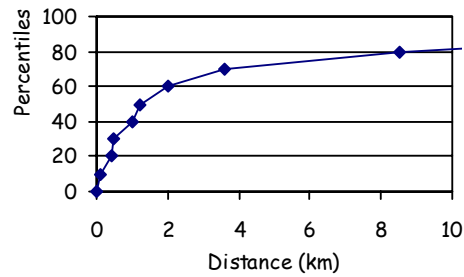


Chart 15b: Distance - non-urban

These differences are highly unlikely to have occurred by chance; no explanation is offered for this result [which also occurs in other categories] other than to note that in an urban environment there are perhaps a greater number of suitable locations for concealment close at hand than there are in a non-urban environment, and therefore the degree of travel required is reduced.

Despondents - Terrain Differences for males

Comparison of urban [n=26] v non-urban [n=99]

a. **Outcome** - condition if found

males	urban		non-urban	
	n	%	n	%
fatality	8	31	33	33
injured	1	4	15	15
unhurt	16	62	38	38
no trace	1	4	13	13

Table 16 - male despondents, outcomes - urban v non-urban

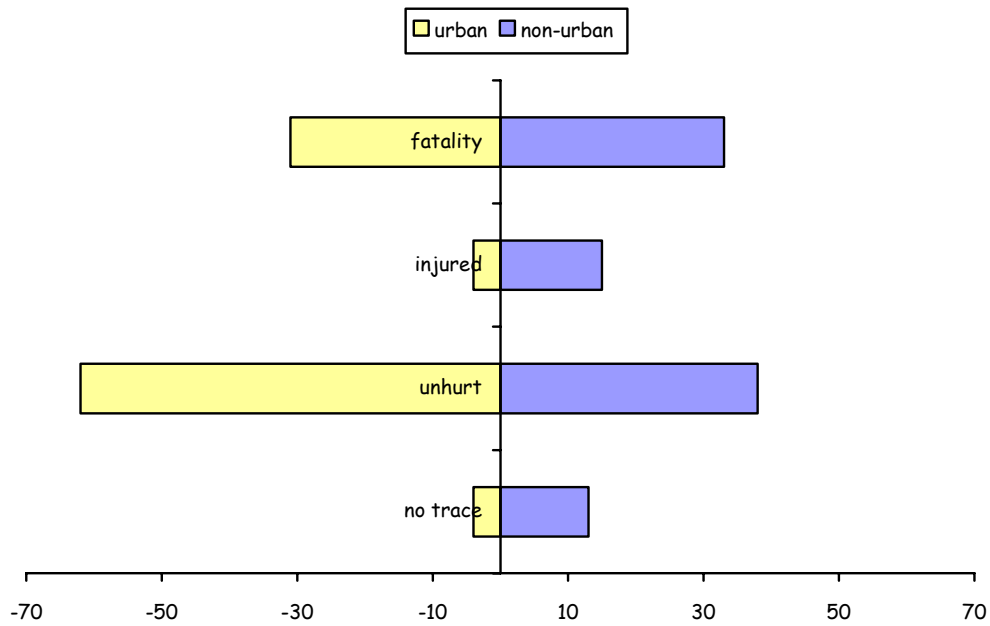


Chart 16: male despondent - Outcomes, urban v non-urban (%)

These differences are very unlikely to have occurred by chance; whilst the proportion of fatalities is very similar, the distribution of the other outcomes is very different between the two groups.

b. Location found

rank	urban males	n	%	non-urban males	n	%
1	habitation	9	35	forest / woodland	15	15
2	road	4	15	habitation	13	13
3	water/water's edge	4	15	no trace	13	13
4	forest edge / clearing	3	12	building / shelter	12	12
5	building / shelter	2	8	road	10	10
6	forest / woodland	1	4	water / water's edge	10	10
7	open ground	1	4	forest edge / clearing	7	7
8	path / track	1	4	open ground	7	7
9	no trace	1	4	stream / ditch	6	6
10	stream / ditch	0	0	path / track	4	4
11	wall / fence line	0	0	wall / fence line	1	1

Table 17 - male despondents, location, urban v non-urban

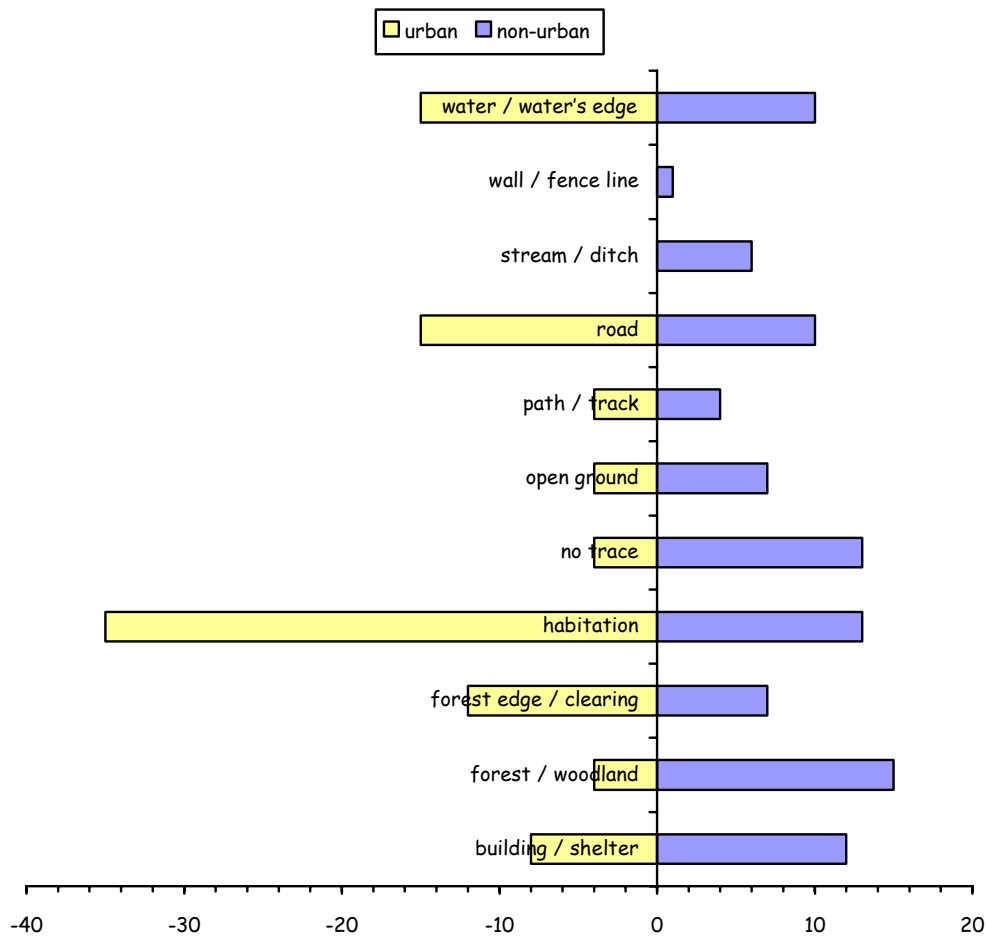


Chart 17: male despondent, location, urban v non-urban (%)

These differences are unlikely to have occurred by chance, and perhaps reflect nothing more than the opportunities offered for concealment in the urban and non-urban environments.

c. Distances from the IPP

percentile	urban kms	non-urban kms
10	0.0	0.1
20	0.0	0.5
30	0.1	0.6
40	0.2	0.9
50	0.3	1.0
60	0.8	2.0
70	1.0	3.1
80	4.4	10.0
90	11.0	18.8
100	32.0	120.0

Table 18 - male despondents, distance from IPP, urban v non-urban

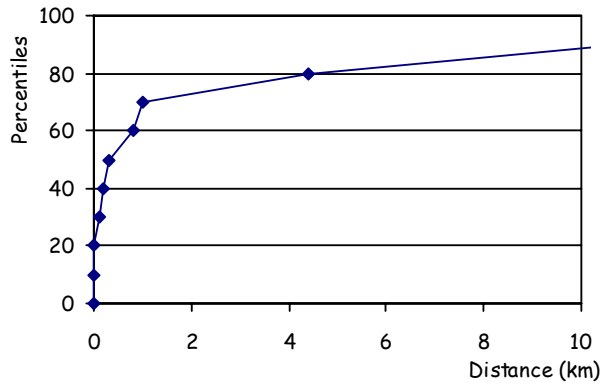


Chart 18a: male despondent, distance, urban

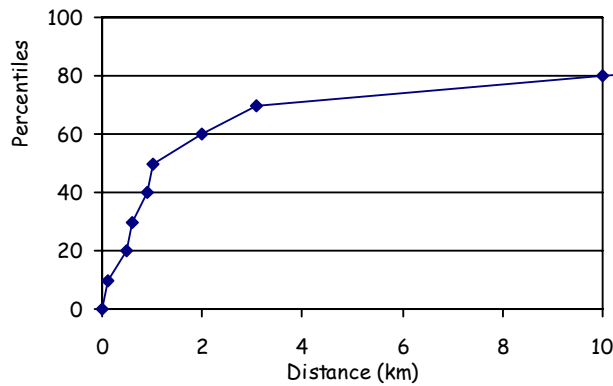


Chart 18b: male despondent, distance, non-urban

These differences are extremely unlikely to have occurred by chance; no explanation is offered for this result [which also occurs in other categories] other than to note that in an urban environment there are perhaps a greater number of suitable locations for concealment close at hand than there are in a non-urban environment, and therefore the degree of travel required is reduced.

Despondents - Terrain Differences for females

Comparison of urban [n=16] v non-urban [n=38]

Note: the number of reported urban female despondents is below the threshold at which this level of reporting would normally occur, but because the number of reported non-urban females is above the threshold the comparisons are made for the sake of completeness. A degree of caution should therefore be exercised when considering the statistics given below for urban females.

a. **Outcome** - condition if found

Females	urban		non-urban	
	n	%	n	%
Fatality	5	31	11	29
Injured	0	0	7	18
Unhurt	10	63	17	45
no trace	1	6	3	8

Table 19 - female despondents, outcome - urban v non-urban

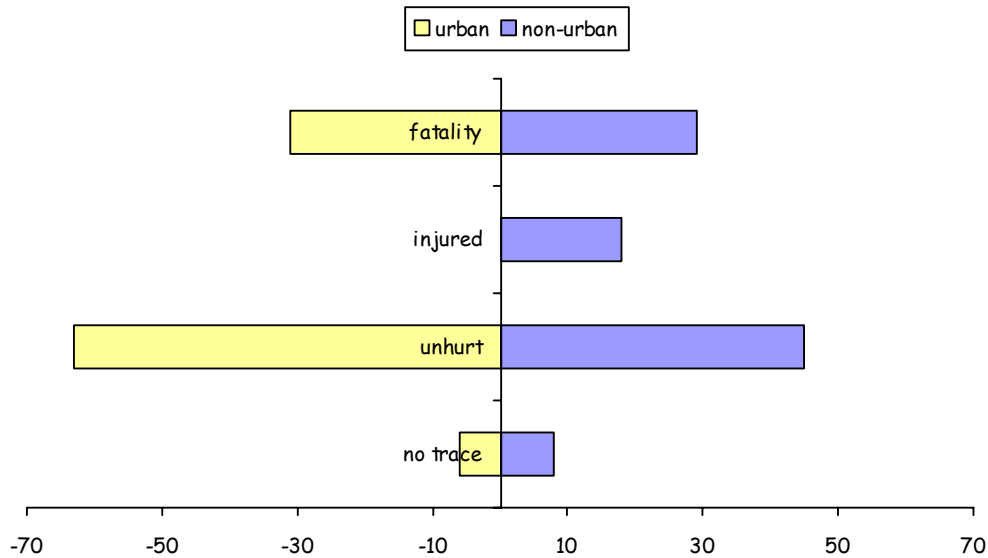


Chart 19: female despondent - Outcomes (%)

These differences are unlikely to have occurred by chance; the proportion of injured and unhurt subjects is quite different between the two groups.

b. Location found

rank	urban females	n	%	non-urban females	n	%
1	habitation	5	31	forest / woodland	10	27
2	building / shelter	4	25	Habitation	7	19
3	open ground	3	19	water / water's edge	7	19
4	forest / woodland	1	6	Road	4	11
5	wall / fence line	1	6	building / shelter	3	8
6	water / water's edge	1	6	no trace	3	8
7	no trace	1	6	open ground	2	6
8	forest edge / clearing	0	0	stream / ditch	1	3
9	path / track	0	0	forest edge / clearing	0	0
10	road	0	0	path / track	0	0
11	stream / ditch	0	0	wall / fence line	0	0

Table 20 - female despondents, location, urban v non-urban

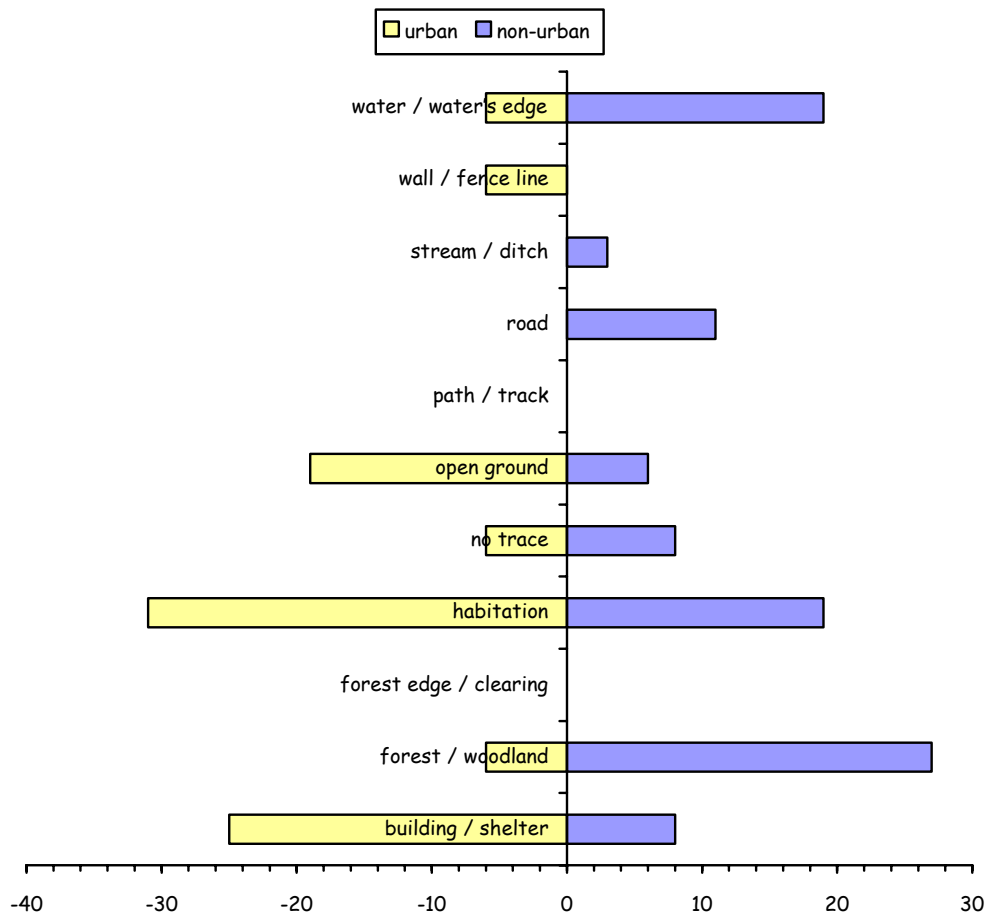


Chart 20: female despondent, location, urban v non-urban (%)

These differences are very unlikely to have occurred by chance, and perhaps reflect nothing more than the opportunities offered for concealment in the urban and non-urban environments.

c. **Distance** found from IPP

percentile	urban kms	non-urban kms
10	0.0	0.1
20	0.0	0.3
30	0.2	0.5
40	0.4	1.0
50	0.8	1.5
60	0.9	2.4
70	1.1	4.0
80	1.5	8.3
90	9.2	13.2
100	20.0	38.8

Table 21 - despondents, distances, urban v non-urban

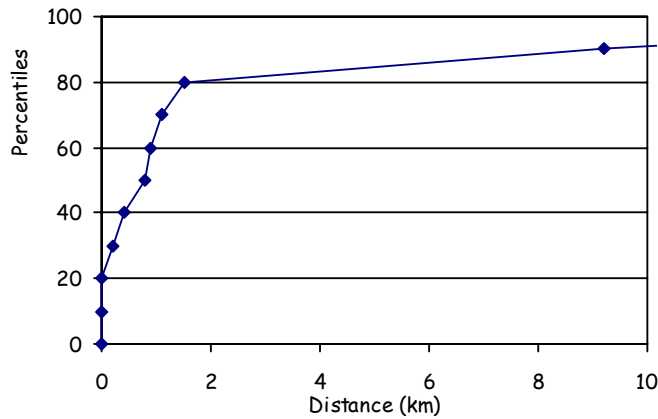


Chart 21a: female despondent, Distance - urban

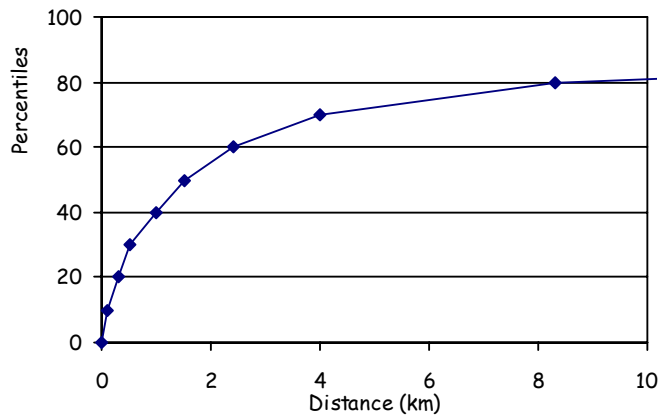


Chart 21b: female despondent, Distance - non-urban

These differences are extremely unlikely to have occurred by chance; no explanation is offered for this result [which also occurs in other categories] other than to note that in an urban environment there are perhaps a greater number of suitable locations for concealment close at hand than there are in a non-urban environment, and therefore the degree of travel required is reduced.

Despondents - Differences in Outcome and Distance travelled

Outcome and distance travelled

In Bob Koester's recent work (...) he was able to discern that despondents fall into two sub-groups: the first consists of those individuals intending to do themselves harm, who do not travel far in their search for a suitable place in which to do it; the second sub-group consists of those who do not intend to harm themselves, and who are further from the IPP when found. Therefore, the reasoning goes, if we can determine for a particular individual whether or not self-harm is likely to be involved, then that will suggest a relatively short or long travel from the IPP and the obvious implications for the search planner.

We can use the data available for despondents to perform a rudimentary test on this hypothesis. It will not be completely waterproof: the intentions of the individuals are not recorded, only the outcomes; the outcome may or may not have been intended; 'short' and 'long' are not absolute terms - what is a long distance for one individual could be a short distance for another. Notwithstanding these grey areas, it is worth looking at the available data. The numbers of despondents in each sub-group is 'unhurt' 87 and 'fatality or injured' 90.

percentile	'unhurt kms' [n = 87]	'fatality or injured' kms [n = 90]
10	0.0	0.1
20	0.1	0.3
30	0.5	0.5
40	0.9	0.6
50	1.3	1.0
60	2.5	1.0
70	4.9	1.5
80	10.3	3.1
90	18.3	10.0
100	120.0	38.8

Table 22 - despondents, distances by outcome

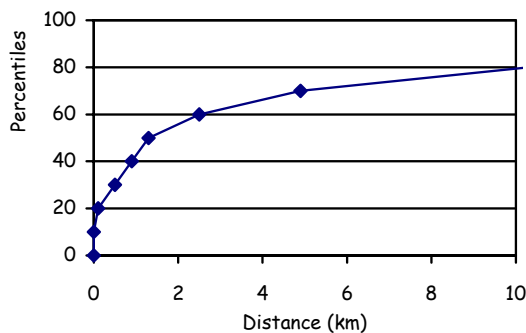


Chart 22a: despondent, Distance - unhurt

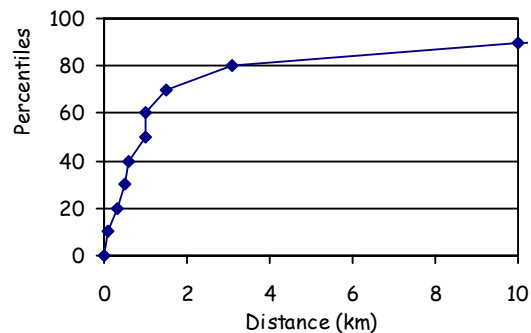


Chart 22b: despondent, Distance - injured/fatal

Examination of the data shows that 30% of the members of both sub-groups are located within 0.5 kms of the IPP, but in the remaining 70% of instances individuals who are found unhurt tend to be found at a greater distance than those who are found dead or injured. The difference between these two sets of distances is such that it is extremely unlikely to have occurred by chance. The data therefore appears to support the hypothesis. No explanation for this phenomenon is offered.

Hikers / walkers, all searches [n = 77]

- a. **Description** of category - this category covers any form of recreational walker, of whatever intended distance, involving persons 17 years or more old.
- b. **Outcome** - condition if found

	n	%
fatality	9	12
injured	3	4
unhurt	65	84
no trace	0	0

Table 23 -hikers / walkers, outcomes, all searches

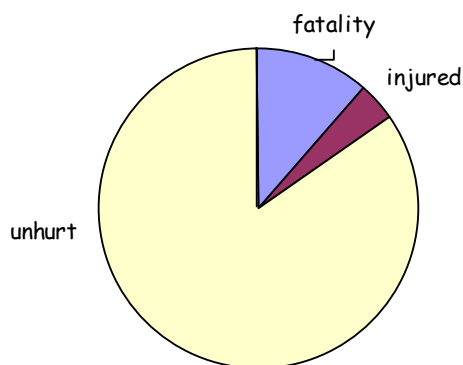


Chart 23 : Hiker / Walker - Outcome

- c. **Location** found

	n	%
Open ground	26	34
Path / track	17	22
Road	10	13
Building / shelter	8	10
Habitation	5	6
Wall / fence line	4	5
Forest / woodland	2	3
Forest edge / clearing	2	3
Stream / ditch	2	3
Water / water's edge	1	1
No trace	0	0

Table 24 - hikers / walkers, location, all searches

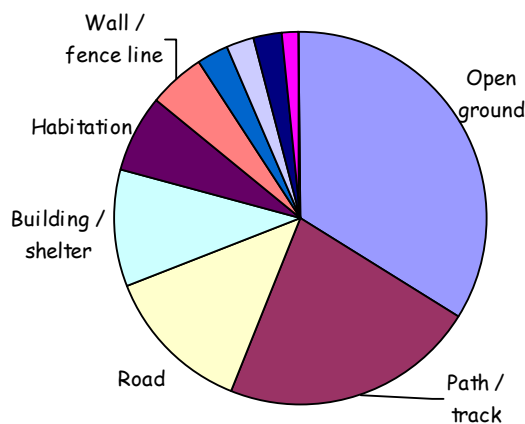


Chart 24: Hiker / Walker - Location

d. **Distance** found from IPP

percentile	kms
10	0.5
20	1.0
30	1.5
40	2.3
50	3.0
60	3.8
70	5.0
80	6.0
90	7.0
100	25.3

Table 25 - hikers / walkers, distance

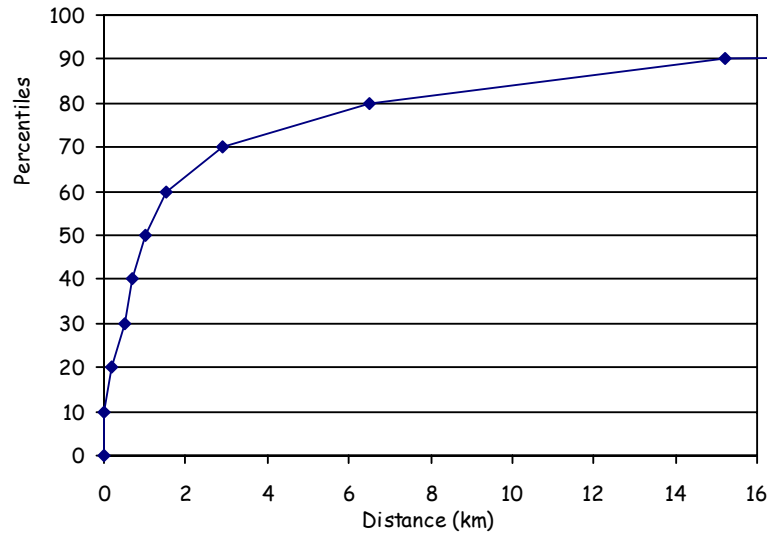


Chart 25: hiker / walker - distance, all searches

Hikers / walkers - Gender Differences

Comparison of males [n=43] v females [n=16]

Note: the number of reported female hikers / walkers is below the threshold at which this level of reporting would normally occur, but because the number of reported male hikers / walkers is above the threshold the comparisons are made for the sake of completeness. A degree of caution should therefore be exercised when considering the statistics given below for female hikers / walkers.

a. Outcome - condition if found

	males		females	
	n	%	n	%
fatality	8	19	0	0
injured	0	0	2	13
unhurt	35	81	14	88
no trace	0	0	0	0

Table 26 - hikers / walkers, outcomes by gender

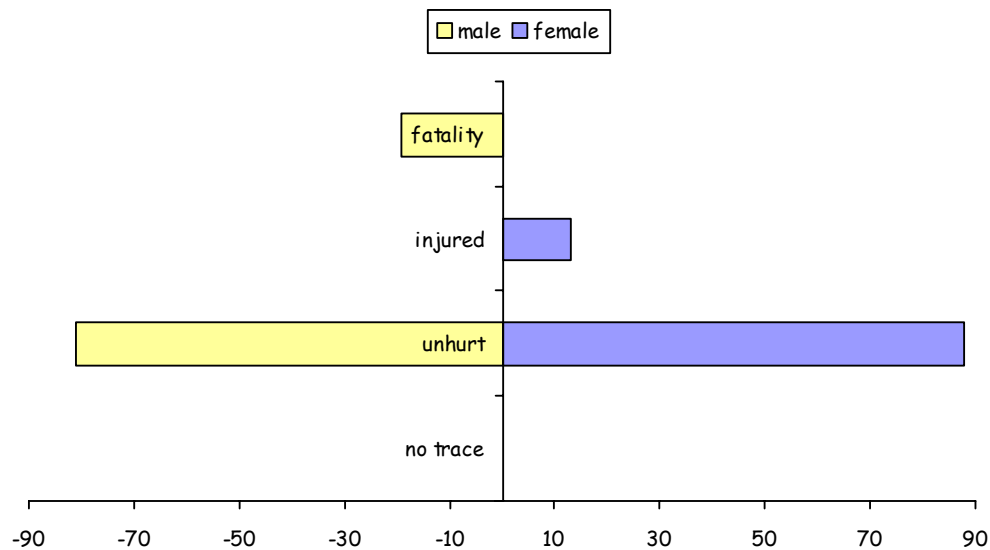


Chart 26: hiker / walker - outcomes by gender (%)

For both males and females the proportions found unhurt are very similar; beyond that, however, the two sets of figures are quite different.

b. Location found

rank	males	n	%	females	n	%
1	open ground	19	44	path / track	6	38
2	path / track	6	14	open ground	3	19
3	road	4	9	Road	3	19
4	wall / fence line	4	9	building / shelter	1	6
5	building / shelter	3	7	forest / woodland	1	6
6	habitation	3	7	habitation	1	6
7	Stream / ditch	2	5	water / water's edge	1	6
8	forest / woodland	1	2	forest edge / clearing	0	0
9	forest edge / clearing	1	2	stream / ditch	0	0
10	water / water's edge	0	0	wall / fence line	0	0
11	no trace	0	0	no trace	0	0

Table 27 -hikers / walkers, location by gender

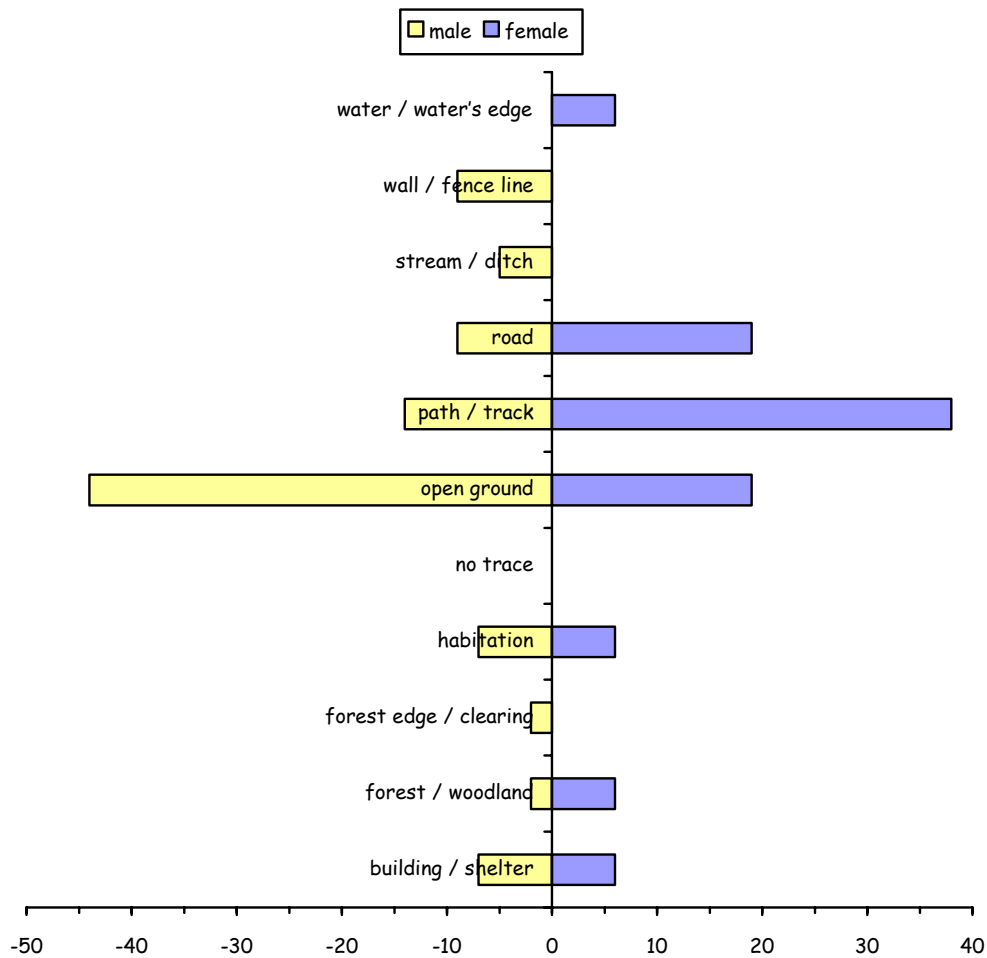


Chart 27: hiker / walker, location by gender (%)

These differences are very unlikely to have occurred by chance; no explanation is offered.

c. **Distance** found from IPP

Percentile	males	females
	kms	kms
25	1.6	1.2
50	3.4	1.4
75	6.1	3.7
100	12.8	7.8

Table 28 - hikers / walkers, distances by gender

These differences are highly unlikely to have occurred by chance; no explanation is offered.

Hikers / walkers - Terrain Differences

Comparison between 'crag / broken ground' [n=30] and 'moorland / upland' [n=41]

These two terrain types accounted for 92% of all incidents involving persons in this category.

a. **Outcome** - condition if found

terrain	crag / broken ground		moorland / upland	
	n	%	n	%
fatality	5	17	3	7
injured	1	3	1	2
unhurt	24	80	37	90
no trace	0	0	0	0

Table 29 - hikers / walkers, outcomes by terrain type

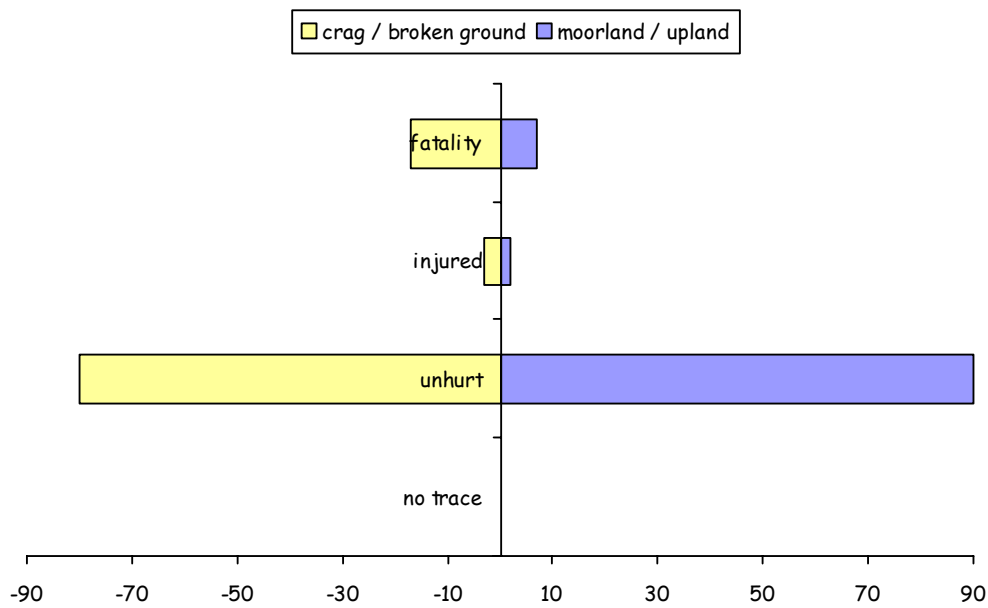


Chart 29: hiker / walker - Outcomes by terrain (%)

These differences are unlikely to have occurred by chance; notice the higher level of fatalities occurring with incidents in terrain classed as 'crag / broken ground'.

b. Location found

Rank	Terrain					
	Crag / broken ground		Moorland upland			
		n	%	n	%	
1	Open ground	15	50	Path / track	11	27
2	Path / track	6	20	Open ground	10	24
3	Building / shelter	3	10	Road	7	17
4	Road	3	10	Building / shelter	5	12
5	Habitation	2	7	Habitation	3	7
6	Wall / fence line	1	3	Wall / fence line	2	5
7	Forest / woodland	0	0	Forest edge / clearing	1	2
8	Forest edge / clearing	0	0	Stream / ditch	1	2
9	Stream / ditch	0	0	Water / water's edge	1	2
10	Water / water's edge	0	0	Forest / woodland	0	0
11	No trace	0	0	No trace	0	0

Table 30 - hikers / walkers, location by terrain type

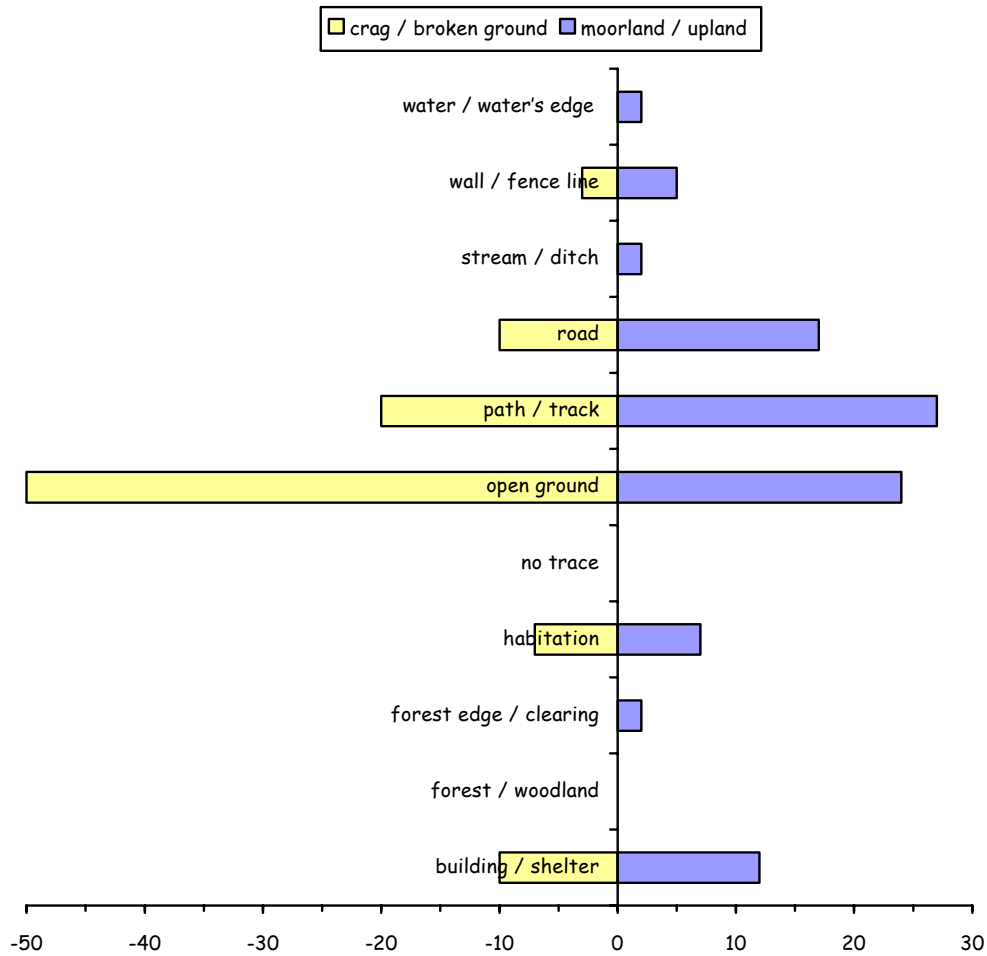


Chart 30: hiker / walker, location by terrain type (%)

These differences are very unlikely to have occurred by chance.

c. Distances found from IPP

percentile	terrain	
	crag / broken ground	moorland / upland
	kms	kms
10	0.1	0.5
20	1.0	1.0
30	1.5	1.6
40	2.2	2.2
50	2.9	3.6
60	3.6	4.8
70	4.0	6.0
80	5.6	6.6
90	6.8	8.0
100	7.0	25.3

Table 31 - distance travelled from IPP, hikers / walkers, by terrain type

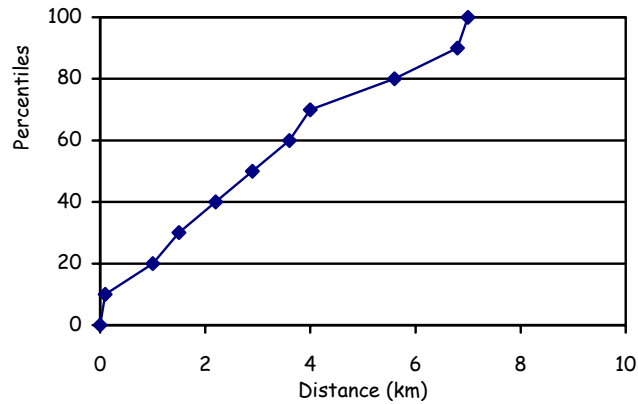


Chart 31a: hiker / walker, Distance - crag / broken ground

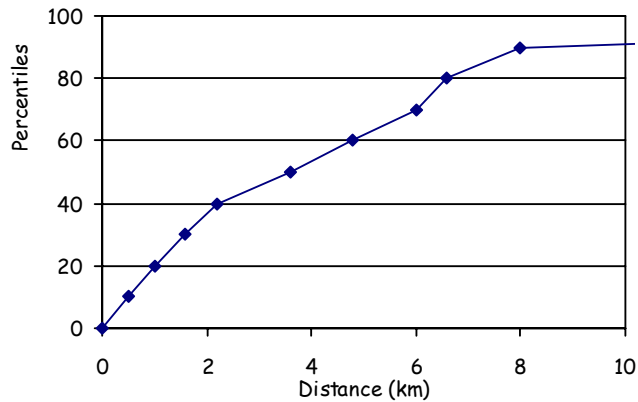


Chart 31b: hiker / walker, Distance - moorland / upland

The difference between these two sets of distances is highly unlikely to have occurred by chance and perhaps reflects the differences in the difficulty of travel in the two types of terrain.

Miscellaneous, all searches [n = 30]

a. **Description** of category - this category covers any other use of the outdoors not included in other categories - agricultural workers and foresters, bird watchers etc.

b. **Outcome** - condition if found

	n	%
fatality	13	43
injured	1	3
unhurt	11	37
no trace	5	17

Table 32 - miscellaneous, outcomes, all searches

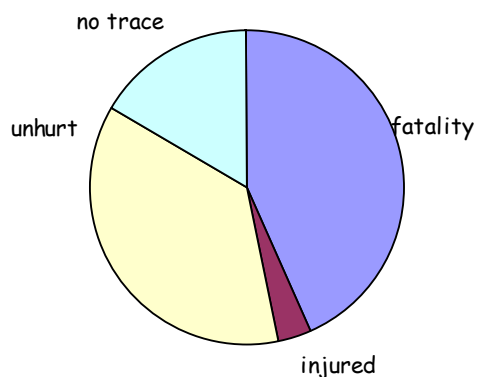


Chart 32 : Miscellaneous - Outcome, all searches

c. **Location found**

	n	%
water / water's edge	8	27
open ground	5	17
no trace	5	17
building / shelter	3	10
habitation	3	10
path / track	3	10
Forest / woodland	1	3
road	1	3
wall / fence line	1	3
forest edge / clearing	0	0
stream / ditch	0	0

Table 33 - miscellaneous, location, all searches

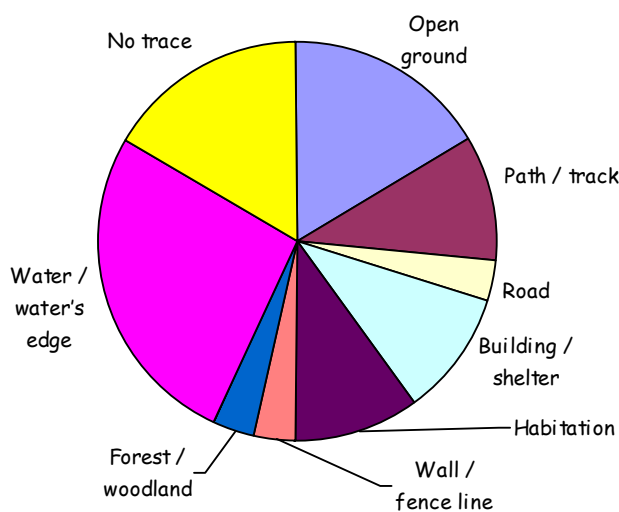


Chart 33: Miscellaneous - Location, all searches

d. **Distance** found from IPP

percentile	kms
20	0.2
40	0.9
60	2.0
80	4.5
100	10.0

Table 34 -
miscellaneous,
distance, all searches

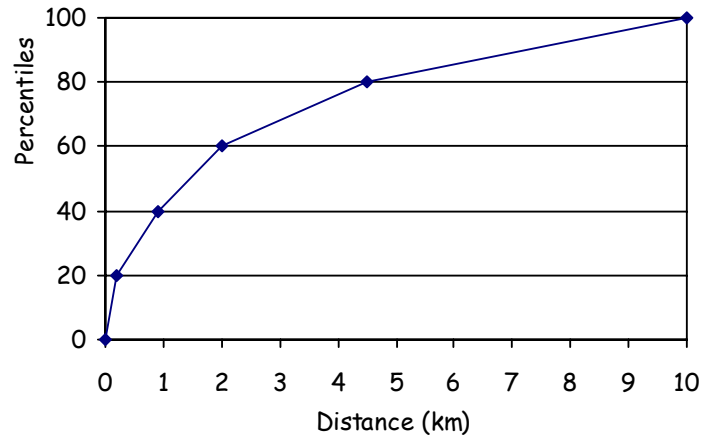


Diagram 34: Miscellaneous - Distance

Organised party, all searches [n = 14]

a. **Description** of category - a party with a recognised leader and purpose

b. **Outcome** - condition if found

	n
fatality	0
injured	3
unhurt	11
no trace	0

Table 36 - organised party, outcomes, all searches

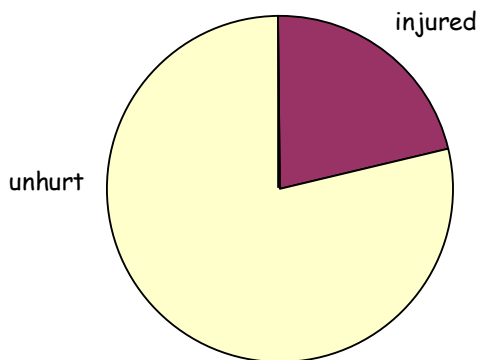


Chart 36 : organised party - Outcome

c. **Location found**

	n
open ground	5
building / shelter	2
path / track	2
stream / ditch	2
forest / woodland	1
forest edge / clearing	1
road	1
habitation	0
wall / fence line	0
water / water's edge	0
no trace	0

Table 37 - organised party, location, all searches

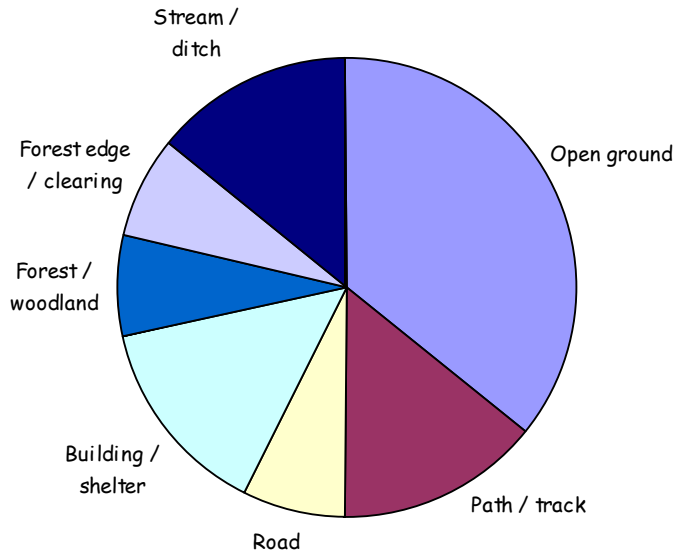


Chart 37: Miscellaneous - Location

d. **Distance** found from IPP

<u>percentile</u>	<u>kms</u>
25	1.9
50	3.5
75	4.5
<u>100</u>	<u>6.5</u>

Table 38 - organised party, distance, all searches

Vulnerables, all searches [n = 168]

- a. **Description** of category - this category is used when the subject can be described as having significant mental impairment, for example mentally handicapped, sufferers of dementia [senile or Alzheimer's], sufferers of psychoses.
- b. **Outcome** - condition if found

	n	%
fatality	30	18
injured	19	11
unhurt	112	67
no trace	7	4

Table 39 - vulnerables, outcomes, all searches

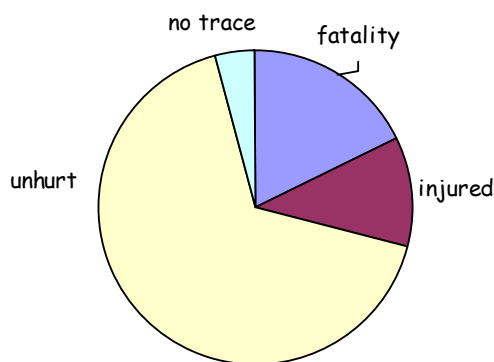


Chart 39 : vulnerable - outcomes

- c. **Location found**

	n	%
habitation	37	22
road	25	15
open ground	22	13
building / shelter	16	10
wall / fence line	14	8
forest / woodland	11	7
water / water's edge	11	7
forest edge / clearing	8	5
path / track	8	5
stream / ditch	7	4
no trace	7	4

Table 40 - location of find, vulnerables, all searches

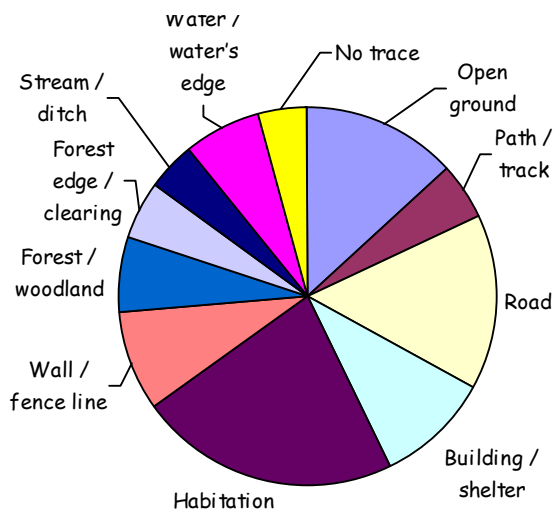


Chart 40: vulnerable - Location

d. **Distance** found from IPP

percentile	kms
10	0.1
20	0.3
30	0.6
40	1.0
50	1.5
60	2.2
70	3.2
80	6.0
90	11.0
100	84.0

Table 41 -
vulnerables, distance,
all searches

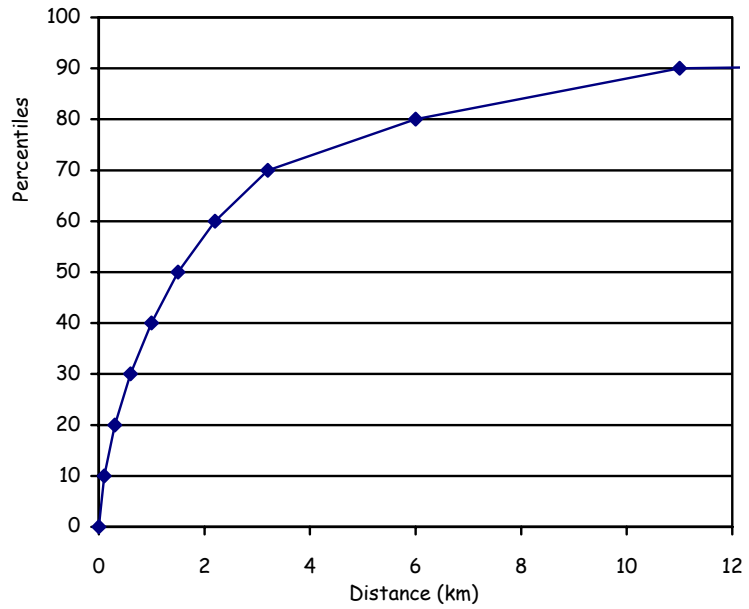


Diagram 41: vulnerable - distance, all searches

Vulnerables - Gender Differences

Comparison of males [n=96] v females [n=46]

a. **Outcome** - condition if found; there was no significant difference between the data for males and the data for females - for this information refer to table 39.

b. **Location found**

rank	males	n	%	females	n	%
1	habitation	22	23	habitation	9	20
2	road	15	16	building / shelter	7	15
3	open ground	13	14	open ground	7	15
4	forest / woodland	10	10	wall / fence line	6	13
5	building / shelter	7	7	road	5	11
6	forest edge / clearing	6	6	water / water's edge	5	11
7	wall / fence line	6	6	no trace	3	7
8	path / track	5	5	path / track	2	4
9	stream / ditch	5	5	forest / woodland	1	2
10	water / water's edge	4	4	stream / ditch	1	2
11	no trace	3	3	forest edge/clearing	0	0

Table 42 - vulnerables, location by gender

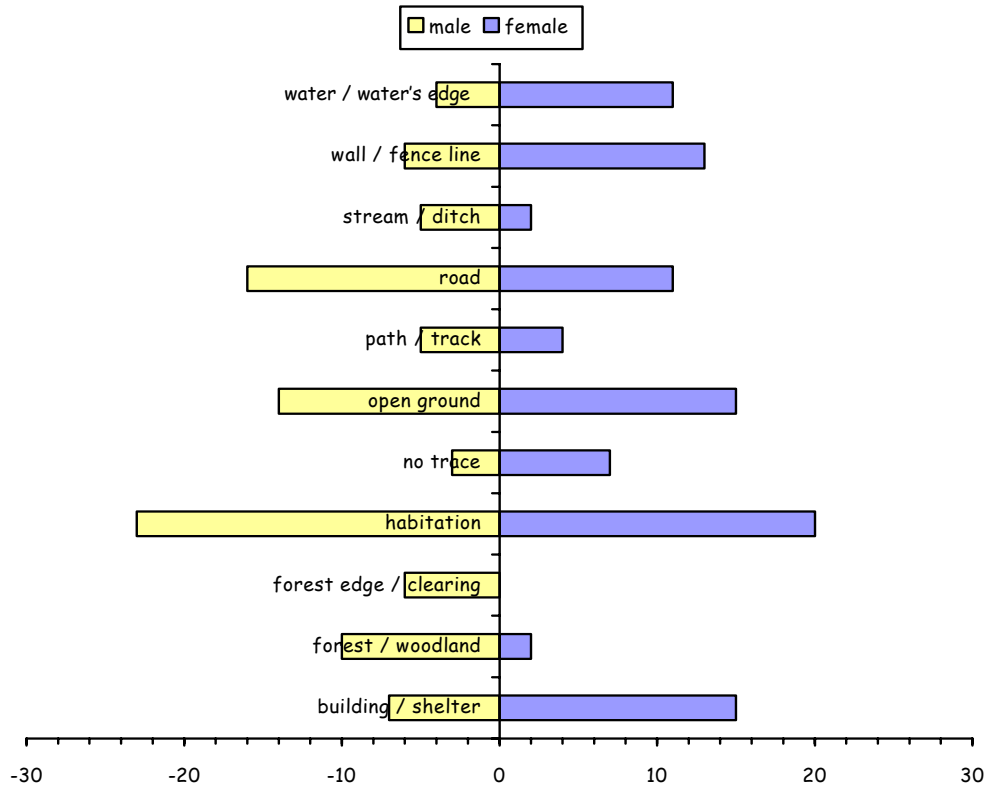


Chart 42: vulnerable, location by gender (%)

These differences are highly unlikely to have occurred by chance.

- c. **Distance** found from IPP; there was no significant difference between the data for males and the data for females - for this information refer to table 41.

Vulnerables - Terrain Differences

Comparison of urban [n=79] v non-urban [n=89]

- a. **Outcome** - condition if found; there was no significant difference between the data for urban and non-urban - for this information refer to table 39.
- b. **Location found**

rank	urban	n	%	non-urban	n	%
1	habitation	21	28	habitation	16	18
2	road	12	16	open ground	13	14
3	building / shelter	11	15	road	13	14
4	open ground	9	12	forest / woodland	10	11
5	wall / fence line	8	11	path / track	6	6
6	water / water's edge	5	7	stream / ditch	6	6
7	forest / edge / clearing	4	5	wall / fence line	6	6
8	path / track	2	3	water / water's edge	6	6
9	no trace	2	3	building / shelter	5	6
10	forest / woodland	1	1	no trace	5	6
11	stream / ditch	1	1	forest edge/clearing	4	4

Table 43 - vulnerables, location, urban v non-urban

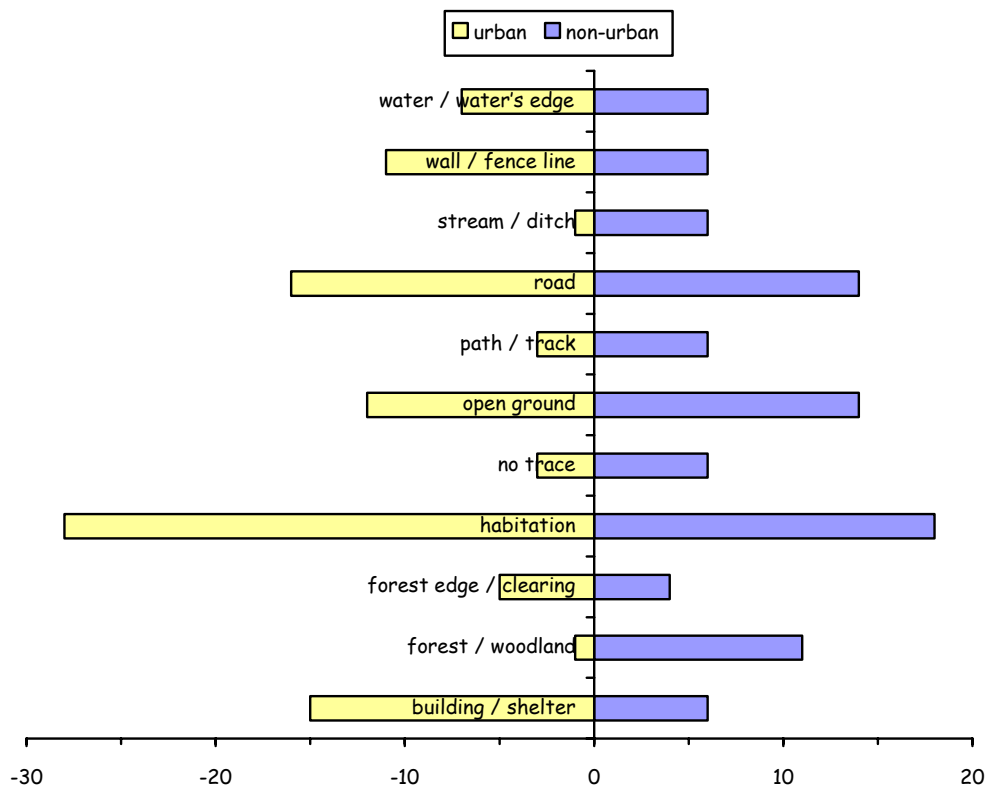


Chart 43: vulnerable, location, urban v non-urban (%)

The differences between these two sets of values are such that they are extremely unlikely to have occurred by chance.

c. Distances found from the IPP

percentile	urban incidents kms	non-urban incidents kms
10	0.0	0.3
20	0.2	0.6
30	0.3	1.0
40	0.6	1.2
50	1.0	2.0
60	1.6	2.3
70	3.0	3.4
80	4.9	6.0
90	10.2	12.3
100	40.0	84.0

Table 44 - vulnerables, distances, urban v non-urban

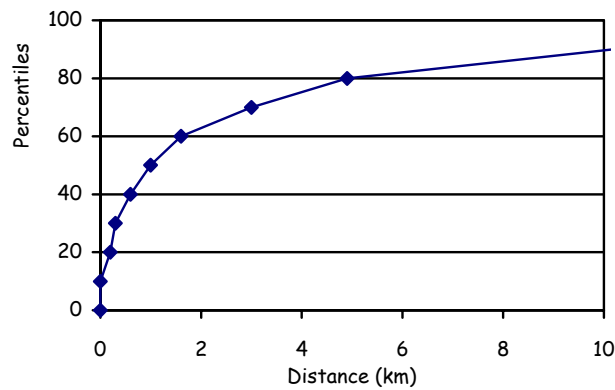


Chart 44a: vulnerable, distance - urban

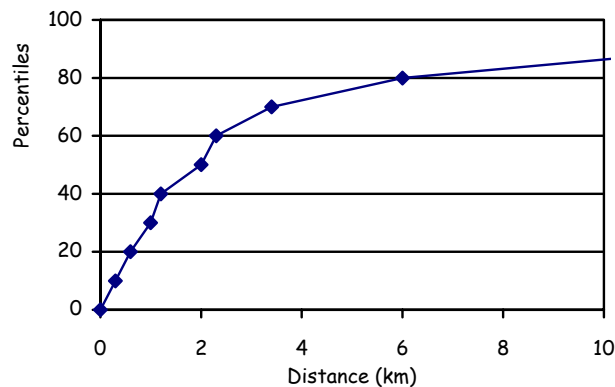


Chart 44b: vulnerable, distance - non-urban

The differences between these two sets of values are such that they are extremely unlikely to have occurred by chance; see the comment made in relation to table 15.

Vulnerables - Terrain Differences for males

Comparison of urban [n=43] v non-urban [n=53]

- a. **Outcome** - condition if found; there was no significant difference between the data for urban and non-urban males - for this information refer to table 39.
- b. **Location found**

rank	urban males	n	%	non-urban males	n	%
1	habitation	11	26	habitation	11	21
2	road	8	19	forest / woodland	9	17
3	open ground	5	12	open ground	8	15
4	building / shelter	4	9	road	7	13
5	forest edge / clearing	4	9	stream / ditch	4	8
6	wall / fence line	3	7	building / shelter	3	6
7	path / track	2	5	path / track	3	6
8	water / water's edge	2	5	wall / fence line	3	6
9	no trace	2	5	forest edge/clearing	2	4
10	forest / woodland	1	2	water / water's edge	2	4
11	stream / ditch	1	2	no trace	1	2

Table 45 - male vulnerable, location, urban v non-urban

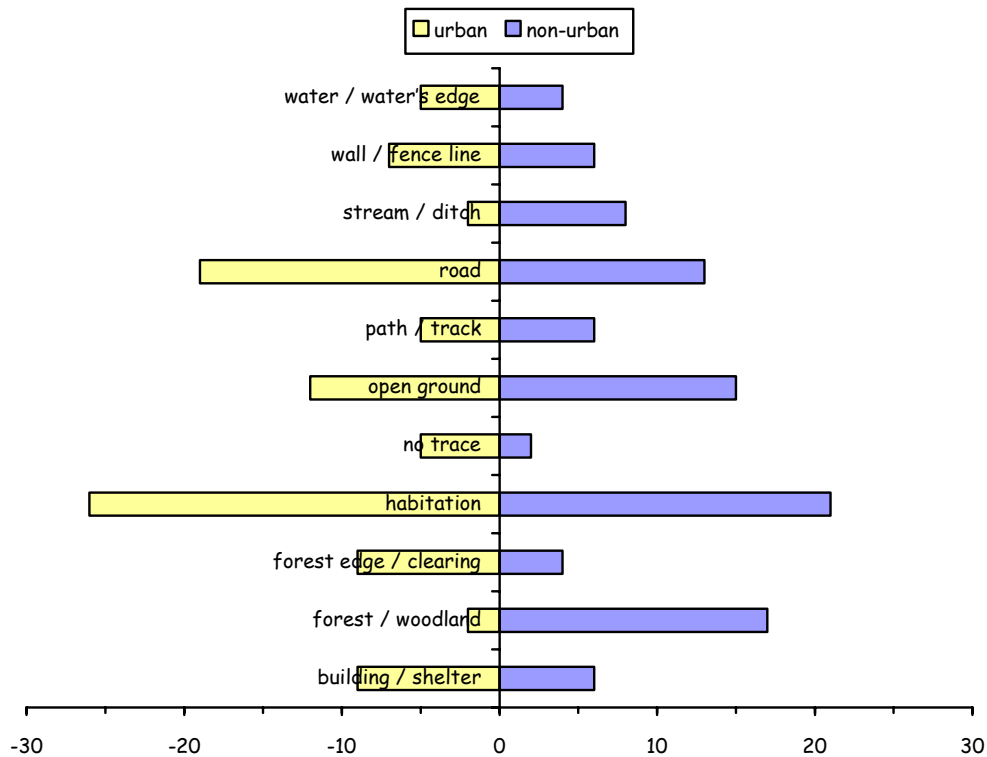


Chart 45: male vulnerable, location, urban v non-urban (%)

The differences between these two sets of values are such that they are extremely unlikely to have occurred by chance.

c. **Distance** found from IPP

percentile	urban kms	non-urban kms
10	0.0	0.2
20	0.2	0.6
30	0.4	1.0
40	0.5	1.5
50	1.0	2.0
60	1.4	2.4
70	2.7	3.2
80	3.4	5.9
90	7.1	12.5
100	19.5	84.0

Table 46 - male vulnerables, distance, urban v non-urban

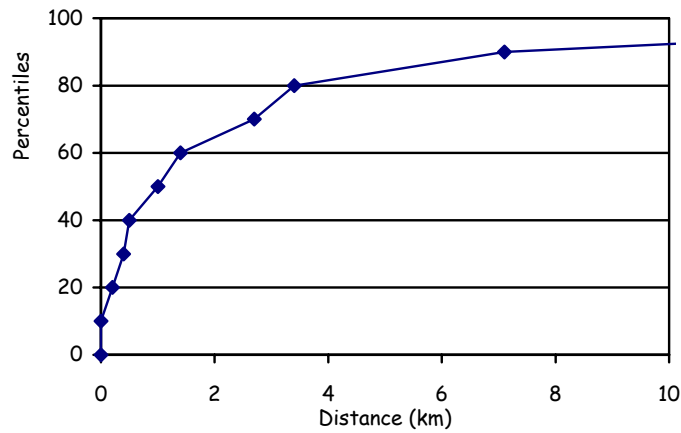


Chart 46a: male vulnerable, distance - urban

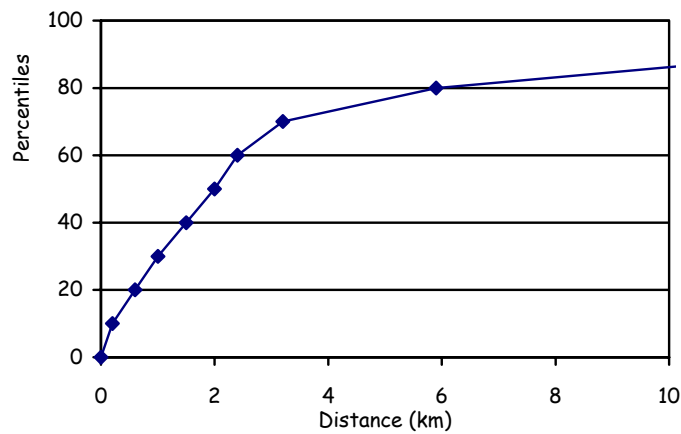


Chart 46b: male vulnerable, distance - non-urban

The differences between these two sets of values are such that they are extremely unlikely to have occurred by chance; see the comment made in relation to table 15.

Vulnerables - Terrain Differences for females

Comparison of urban [n=19] v non-urban [n=27]

Note: the number of reported urban female vulnerables is below the threshold at which this level of reporting would normally occur, but because the number of reported non-urban females is above the threshold the comparisons are made for the sake of completeness. A degree of caution should therefore be exercised when considering the statistics given below for urban females.

- a. **Outcome** - condition if found; there was no significant difference between the data for urban and non-urban females - for this information refer to table 39.
- b. **Location** found

rank	urban females	n	%	non-urban females	n	%
1	building / shelter	5	26	open ground	5	19
2	habitation	5	26	habitation	4	15
3	wall / fence line	4	21	road	4	15
4	open ground	2	11	water / water's edge	3	11
5	water / water's edge	2	11	no trace	3	11
6	road	1	5	building / shelter	2	7
7	forest / woodland	0	0	path / track	2	7
8	forest edge / clearing	0	0	wall / fence line	2	7
9	path / track	0	0	forest / woodland	1	4
10	stream / ditch	0	0	stream / ditch	1	4
11	no trace	0	0	forest edge/clearing	0	0

Table 47 - female vulnerables, location, urban v non-urban

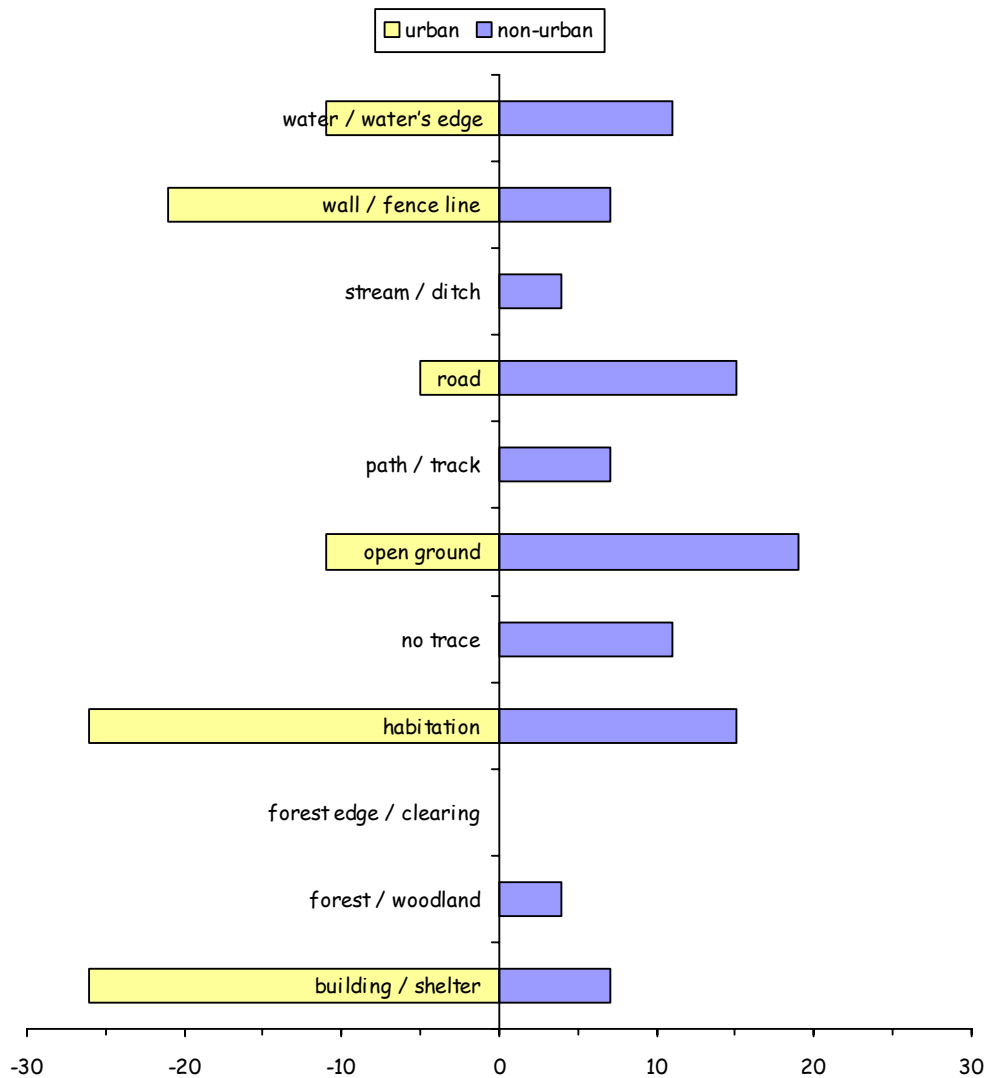


Chart 47: female vulnerable, location, urban v non-urban (%)

The differences between these two sets of values are highly unlikely to have occurred by chance.

c. Distances found from IPP

percentile	urban kms	non-urban kms
10	0.0	0.3
20	0.0	0.6
30	0.1	0.7
40	0.6	0.9
50	1.0	1.6
60	1.1	2.2
70	1.4	2.8
80	3.3	5.0
90	8.4	10.1
100	15.5	35.0

Table 48 - female vulnerables, distances, urban v non-urban

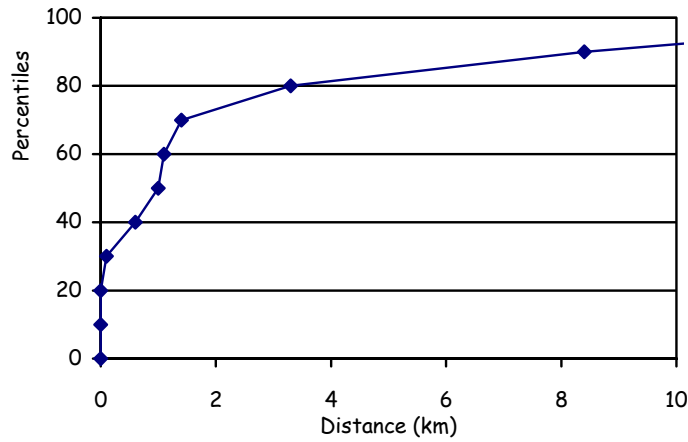


Chart 48a: female vulnerable, distance - urban

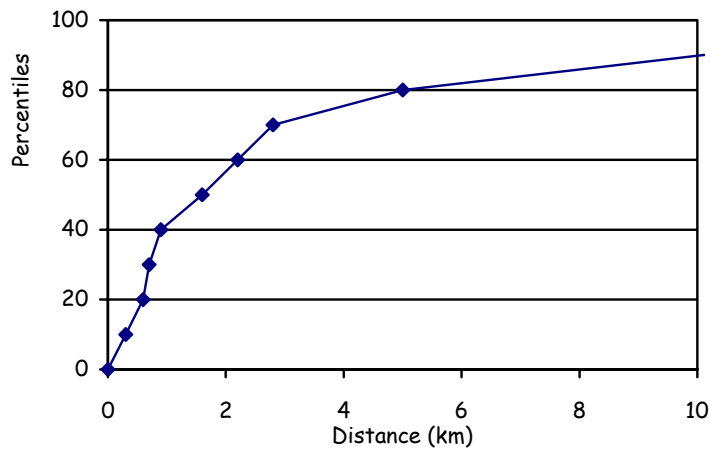


Chart 48b: female vulnerable, distance - non-urban

The differences between these two sets of values are such that they are extremely unlikely to have occurred by chance; see the comment made in relation to table 15.

Youth (13 to 16), all searches [n=21]

a. **Description** - the category covers children whose chronological age is at least 13 years but not greater than 16 years.

b. **Outcome** - condition if found

	n	%
fatality	1	5
injured	1	5
unhurt	19	90
no trace	0	0

Table 49 - youth (13 to 16), outcomes, all searches

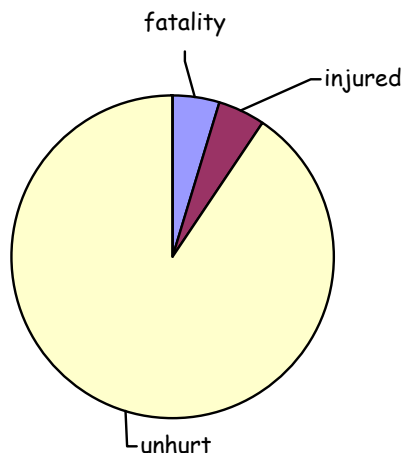


Chart 49 : youth (13 to 16) - Outcome

c. **Location found**

	n	%
habitation	5	25
building / shelter	4	20
forest / woodland	4	20
forest edge / clearing	2	10
path / track	2	10
open ground	1	5
road	1	5
stream / ditch	1	5
wall / fence line	0	0
water / water's edge	0	0
no trace	0	0

Table 50 - youth (13 to 16), location, all searches

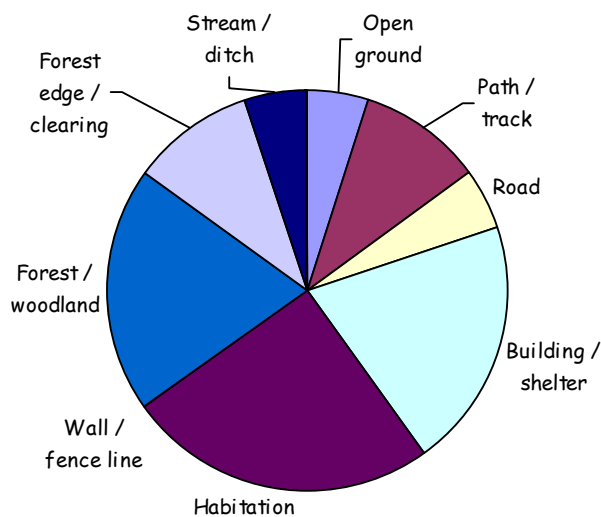


Chart 50: youth (13 to 16) - Location

d. **Distance** found from IPP

percentile	kms
20	0.3
40	1.0
60	1.9
80	4.0
100	132.0

Table 51 - youth (13 to 16), distance, all searches

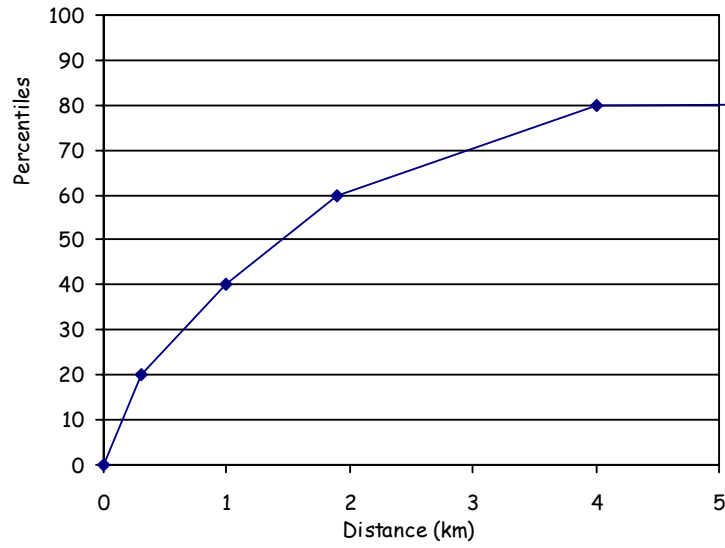


Diagram 51: youth (13 to 16) - Distance

Note: the penultimate distance is 8.1 kms and the one before that is 5.0 kms.

CATEGORIES NOT REPORTED

Five of the twelve categories did not contain sufficient data to warrant any kind of analysis. Of these, it would seem likely that the category 'Child (1 to 6)' will contain sufficient data for some degree of analysis by the end of 2004. The remaining categories contain very little data.

CONCLUDING COMMENTS

1. An overall sample size of 554 compares favourably with and in some cases exceeds Missing Person Behaviour statistics already published. At the current rate the MRC Missing Person Behaviour database will soon be the largest in existence available for general use.
2. This is not a static situation. Not only is the database growing all the time but also its users will become more experienced at using the information. The situation may arise therefore whereby the end user could suggest ways in which the statistics may be presented in the future.
3. The authors have been particularly interested in attaching some measure of significance to the analysis, and have tried to make this aspect available to as many users as possible. For this latest analysis the significance descriptors have been changed to highlight results that we would have passed over in previous years; to a large degree this is an expression of our confidence in the work. Comments and suggestions would be welcome.
3. The report has avoided comparing "our results" with those from other databases. That was not the point of the exercise.
4. To restate the obvious: the level of confidence that the end user should have in any result arising from this study is directly related to the sample size. The greater the volume of data then the greater should be our confidence in the scenarios created from the derived statistics. Your incident reports plus the Missing Person Behaviour report are the only way we can achieve this.

Dave Perkins, Pete Roberts and Ged Feeney
January 2004

Appendix 1 Missing Person Behaviour Study - Definitions

1. Terrain Type - the area through which the major part of the journey took place
 - Crag/Broken Ground - rugged upland
 - Farmland - lowland arable or pasture
 - Moorland/Upland - remote areas of upland or wilderness where rocky outcrops are in the minority
 - Plantation (dense) - developed forest or plantation, the going may well be difficult.
 - Urban - within the confines of a group of habitations, city, town or village.
 - Water Margin - coastline, shoreline of large bodies of water, rivers as well as the water itself.
 - Woodland (open) - parkland or wooded area where passage is relatively easy.

2. Subject Category - of the missing person(s).
 - Child (1 to 6 yr.) - refers to child's chronological age only
 - Child (7 to 12 yr.) - refers to child's chronological age only
 - Climber - on or off route, accessing into or out of the climb.
 - Despondent - anyone where there is evidence that they have deliberately disappeared as a result of clinical depression or intention to harm themselves.
 - Fellrunner - either as a competitor in an event, training or recreation, including orienteering.
 - Hiker / walker - any form of recreational walker, of whatever length, involving persons 17 yr. or older.
 - Miscellaneous - any other use of the outdoors not included in the earlier categories - photographers, mushroom pickers, bird-watchers etc.
 - Mountain Biker - where the bike was the main means of transport, on or off-road.
 - Organised Party - a party with a recognised leader or purpose.
 - Skier - If so equipped, including the walk in and out
 - Vulnerable - anyone who can be described as having significant mental impairment e.g. mentally handicapped, dementia sufferers (senile or Alzheimer's), sufferers of psychoses.
 - Youth (13 to 16 yr.) - refers to child's chronological age only

3. Subject Condition - state of subject when found, or, if still missing when the search was suspended
 - Fatality - dead when found
 - Injured - required significant medical treatment when found
 - Unhurt - did not require significant medical treatment when found
 - No Trace - not located, outcome not known

4. Distance from IPP - Initial Planning Point - the geographical point at which the search planning starts. This could be the Point Last Seen (PLS) or the Last Known Position (LKP). It could be

Either (a) distance measured directly (straight line) on a map in Kilometres correct to 1 dec. pl.

Or (b) using the full OS Grid Reference (of 2 letters + 6 digits) for both the Grid Ref. of IPP and the location where subject found

5. Location of Find - the feature that best describes the location of the find

Building / Shelter - any man-made structure not usually used for human habitation

Forest / Woodland - forest, plantation where progress is difficult

Forest Edge/Clearing - open woodland

Habitation - building usually inhabited

Open Ground - may be sheltering in natural features

Path / Track - may be vehicular but not metalled

Road - Metalled, classified or unclassified

Stream / Ditch - drainage line that can easily be crossed on foot

Wall / Fence Line - any man-made structure enclosing land.

Water/ Water's Edge - in or surrounding a body of water that could not be crossed easily on foot.

Appendix 2 - Statistical Significance and Reliability of Information

There are difficulties in presenting statistical information in a way that satisfies both the specialist and non-specialist reader. Statisticians use the same terminology (for example significance and confidence) as the rest of us, but while statisticians use these terms in a precise and particular way, the rest of us generally do not. But if results are reported using proper statistical conventions, then many people are excluded from sharing the information.

As a compromise the authors have tried to express in words how likely it is that a particular result could have occurred by chance - in fact, this is exactly what statisticians do but they do it using numbers. Where the level of reporting demands it, the data for a particular sub-category has been compared with its complementary sub-category. For example, the proportion of male vulnerables found in each type of location was compared with the proportions of female vulnerables found in those locations (table 42). The question then asked was 'how likely is it that the difference between the two sets of figures came about purely by chance?' Generally speaking, the greater the difference then the less likely it is to have happened by chance. This is called the level of significance, and determines the wording used in the report by inserting the appropriate phrase into the sentence "the difference have occurred by chance".

significance level	likelihood that the two populations are the same	phrase to insert
$p > 0.25$	greater than 25%	could possibly
$0.10 < p < 0.25$	between 10% and 25%	are unlikely to
$0.05 < p < 0.10$	between 5% and 10%	are very unlikely to
$0.01 < p < 0.05$	between 1% and 5%	are highly unlikely to
$p < 0.01$	less than 1% chance	are extremely unlikely to

The greater the degree of 'unlikelihood' the more significant is the result. If this proves to be unsatisfactory then the authors will look for another way of reporting significance.