Why We Fear What We Shouldn't

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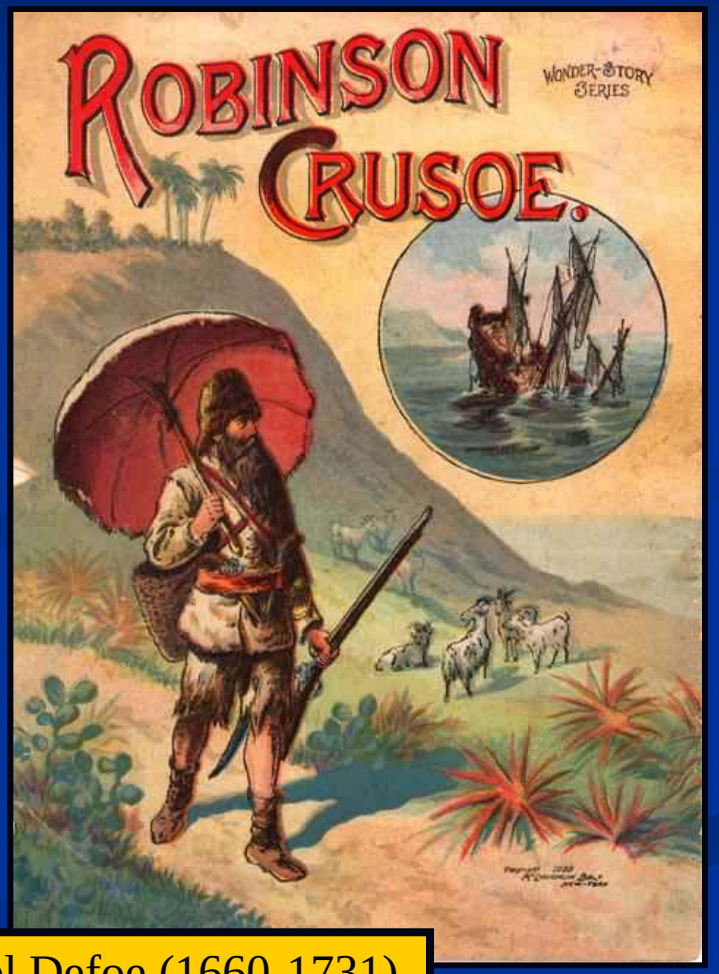
Are you TRA Qualified?

- Fear
- Dealing with client perceptions of trees and risk.

1,595

Robinson Crusoe

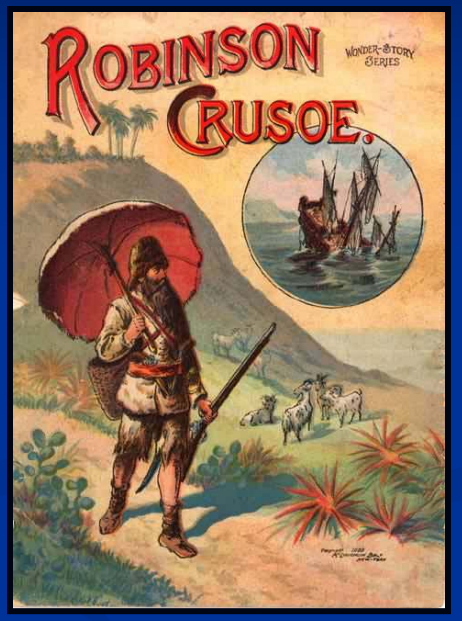
- realistic fiction as a literary genera (Crusoe never lived)
- misadventures of a young Englishman
- shipwrecked for 28 years on "Island of Despair"
- worried about cannibals, wild animals, pirates



Daniel Defoe (1660-1731)
published 1719

after 15 years on "Island of Despair"

- "**Thus fear of danger is ten thousand times more terrifying than danger itself**, (when apparent to the eyes;) **and we find the burden of anxiety greater**, (by much,) **than the evil that we are anxious about.**"
- (and then he went on to worry about things he had not seen in 15 years)



Serendipity

- **Phone call:**
  - "I just moved into house
  - black locust so hollow you can see through it
  - dead in top
  - Div. of Forestry & arborist say, "remove it."
  - **friend** says arborist has conflict of interest."

Disclosure: Not the real tree

FEAR

- Remnant of our 2.5 million year old brain
  - hurt or kill
  - no control over
  - happen quickly
- Humans:
  - slow runners
  - weak
  - no fangs, claws

Soooooooo……

What
do you
Fear
&
Why?

Airplanes

- Driving to the airport is **statistically** more dangerous than flying.
- Which is **scarier**?
  - driving?
  - falling 30,000 ft (10K m) to death in an inferno

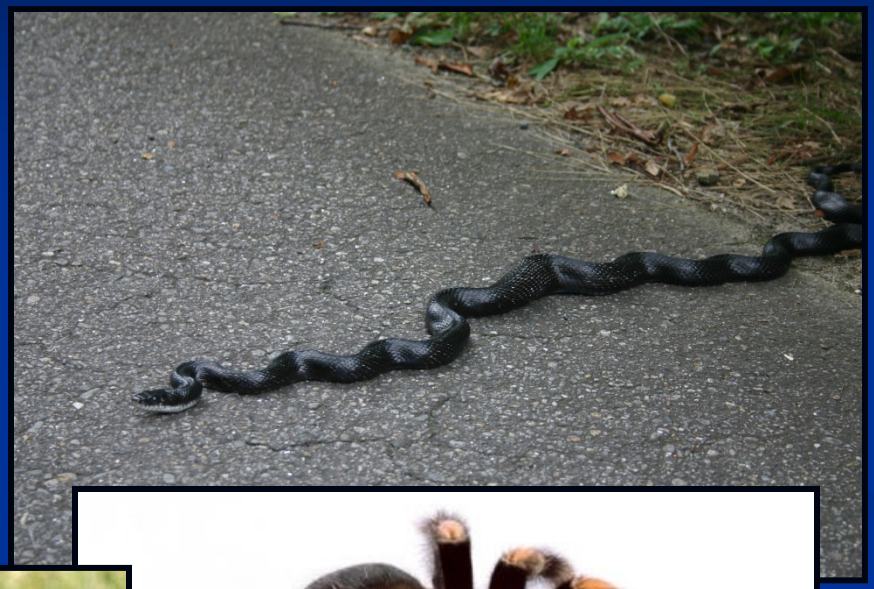
Airplanes

- **Reality:**
  - 2.2 billion flew last year
  - 76% survive crashes

Everyone survived this 2009 crash

Deep-Seated Human Fears:

- **Things that:**
  - cause pain / death
  - have no control
  - happen quickly



Human Fears

10) Losing your freedom

- ♦ grounded until you finish your homework
- ♦ marriage, having children
- ♦ old age

Human Fears

9) The unknown

- the dark
- outcome of some event (passing TRAQ, BCMA)
- closed mindedness

Human Fears

8) Pain (related to losing freedom)

- ♦ inability to carry on with normal activities

Human Fears

7) **Disappointment** (of others and ourselves)

- ♦ "I'm disappointed in you." is worse than being punished

Human Fears

6) Misery (poverty, the lowest point in human need)

- ♦ media feeds this in advertising ("the heartbreak of psoriasis" – commercial for a commonly available dandruff shampoo)

Human Fears

5) Loneliness (absence of interaction with other humans [necessary for survival])

- ♦ not having a date for the prom
- ♦ sitting alone at lunch

Human Fears

4) Ridicule (related to getting negative criticism & stage fright)

- ♦ Remember your nickname from high school?

Human Fears

3) Rejection

- ♦ fear of being alone
- ♦ we justify our personal worth by acceptance of others

Human Fears

2) Death (tied to fear of the unknown)

- ♦ do not know what will happen to us when we die
- ♦ not #1 because we all know it is inevitable

… but do not think it will happen today.

Human Fears

1) Failure

- ♦ disappointment that follows something that did not go as planned
- ♦ an excuse to procrastinate

Human Fears

10. Loss of Freedom
9. The Unknown
8. Pain
7. Disappointment
6. Misery
5. Loneliness
4. Ridicule
3. Rejection
2. Death
1. Failure

From: Caty Medrano (9.30.11) http://listverse.com/2011/09/30/top-10-strong-human-fears/ (9.7.14)

Tree Failures & Human Fears

10. Loss of Freedom –Have to move out for repairs?
9. The Unknown – Will it hit the house? Insurance increase?
8. Pain – Family member injured.
7. Disappointment – Loss of shade, loss of car.
6. Misery – Lot of cleanup work, find contractor, lawsuit?
5. Loneliness – sadness over human injury/loss
4. Ridicule – what are my neighbors thinking?
3. Rejection – for failure to protect loved ones/property
2. Death – Family or self (or others)
1. Failure - I did not protect my family.

What is TRAQ?

- **Tree Failure Assessment**
  - defects & conditions
  - response growth
  - site characteristics
  - site changes
  - physics of loading
  - weakening from decay
  - species failure profile
  - age & vigor

30 inch dbh oak failed (armillaria root rot + wet soil + wind)

What is TRAQ?

- Tree Failure Assessment
  - defects & conditions
  - response growth
  - site characteristics
  - site changes
  - physics of loading
  - weakening from decay
  - species failure profile
  - age & vigor

- **Tree Risk Assessment**
  - Target value
  - Occupancy rate
  - Size of the part
  - Fall distance
  - Protection factors

What is TRAQ?

2 vehicles destroyed, difference was human occupancy rate and consequences

- **Tree Risk Assessment**
  - Target value (consequences)
  - Occupancy rate
  - Size of the part
  - fall distance
  - protection factors

TRAQ

- **Likelihood of Failure:**
  - Imminent
  - Probable
  - Possible
  - Improbable

TRAQ

- **Likelihood of Impacting the Target:**
  - High
  - Medium
  - Low
  - Very Low

Matrix 1

Likelihood of Failure	Likelihood of Impact			
	Very Low	Low	Medium	High
Imminent	Unlikely	Somewhat likely	Likely	Very Likely
Probable	Unlikely	Unlikely	Somewhat likely	Likely
Possible	Unlikely	Unlikely	Unlikely	Somewhat likely
Improbable	Unlikely	Unlikely	Unlikely	Unlikely

TRAQ

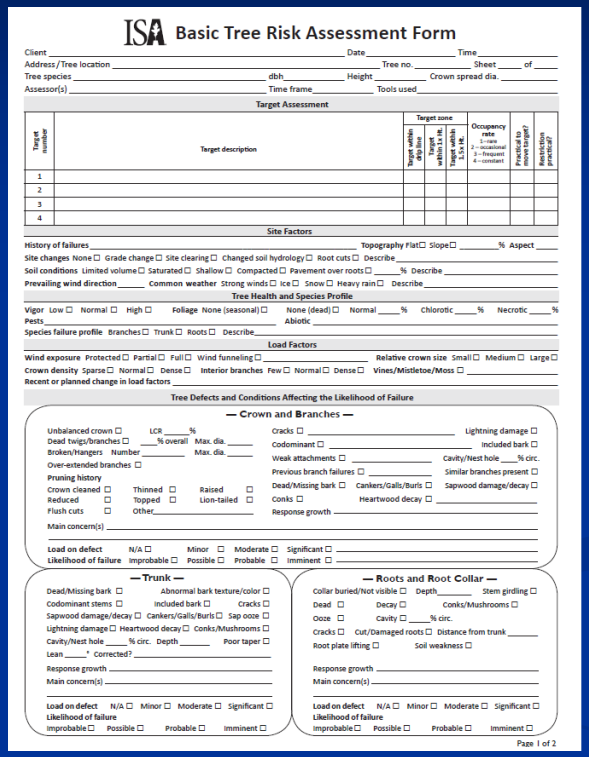
- **Consequences of Failure:**
  - Severe
  - Significant
  - Minor
  - Negligible

Matrix 2

Likelihood of Failure & Impact	Consequences of Failure			
	Negligible	Minor	Significant	Severe
Very Likely	Low	Moderate	High	Extreme
Likely	Low	Moderate	High	High
Somewhat likely	Low	Low	Moderate	Moderate
Unlikely	Low	Low	Low	Low

TRAQ

- **Risk Rating:**
  - Extreme
  - High
  - Moderate
  - Low



ISA Basic Tree Risk Assessment Form

Client _____ Date _____ Time _____

Address / Tree location _____ Tree no. _____ Sheet _____ of _____

Tree species _____ dbh _____ Height _____ Crown spread dia. _____

Assessor(s) _____ Time frame _____ Tools used _____

Target Assessment

Target number	Target description	Target zone: Target within drip line	Target within 1x ht.	Target within 1.5 x ht.	Occupancy rate (1 – rare, 2 – occasional, 3 – frequent, 4 – constant)	Practical to move target?	Practical to restrict access?
1							
2							
3							
4							

Site Factors

History of failures _____ Topography Flat ☐ Slope ☐ _____% Aspect _____

Site changes None ☐ Grade change ☐ Site clearing ☐ Changed soil hydrology ☐ Root cuts ☐ Describe _____

Soil conditions Limited volume ☐ Saturated ☐ Shallow ☐ Compacted ☐ Pavement over roots ☐ _____% Describe _____

Prevailing wind direction _____ Common weather Strong winds ☐ Ice ☐ Snow ☐ Heavy rain ☐ Describe _____

Tree Health and Species Profile

Vigor Low ☐ Normal ☐ High ☐ Foliage None (seasonal) ☐ None (dead) ☐ Normal _____% Chlorotic _____% Necrotic _____%

Pests _____ Abiotic _____

Species failure profile Branches ☐ Trunk ☐ Roots ☐ Describe _____

Load Factors

Wind exposure Protected ☐ Partial ☐ Full ☐ Wind funneling ☐ _____ Relative crown size Small ☐ Medium ☐ Large ☐

Crown density Sparse ☐ Normal ☐ Dense ☐ Interior branches Few ☐ Normal ☐ Dense ☐ Vines/Mistletoe/Moss ☐ _____

Recent or planned change in load factors _____

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown ☐ LCR _____% Cracks ☐ _____ Lightning damage ☐

Dead twigs/branches ☐ _____% overall Max. dia. _____ Codominant ☐ _____ Included bark ☐

Broken/Hangers Number _____ Max. dia. _____ Weak attachments ☐ _____ Cavity/Nest hole _____% circ.

Over-extended branches ☐ Previous branch failures ☐ _____ Similar branches present ☐

Pruning history Dead/Missing bark ☐ Cankers/Galls/Burls ☐ Sapwood damage/decay ☐

Crown cleaned ☐ Thinned ☐ Raised ☐ Conks ☐ Heartwood decay ☐ _____

Reduced ☐ Topped ☐ Lion-tailed ☐ Response growth _____

Flush cuts ☐ Other _____

Main concern(s) _____

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☐ _____

Likelihood of failure Improbable ☐ Possible ☐ Probable ☐ Imminent ☐

— Trunk —

Dead/Missing bark ☐ Abnormal bark texture/color ☐

Codominant stems ☐ Included bark ☐ Cracks ☐

Sapwood damage/decay ☐ Cankers/Galls/Burls ☐ Sap ooze ☐

Lightning damage ☐ Heartwood decay ☐ Conks/Mushrooms ☐

Cavity/Nest hole _____% circ. Depth _____ Poor taper ☐

Lean _____° Corrected? _____

Response growth _____

Main concern(s) _____

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☐

Likelihood of failure

Improbable ☐ Possible ☐ Probable ☐ Imminent ☐

— Roots and Root Collar —

Collar buried/Not visible ☐ Depth _____ Stem girdling ☐

Dead ☐ Decay ☐ Conks/Mushrooms ☐

Ooze ☐ Cavity ☐ _____% circ.

Cracks ☐ Cut/Damaged roots ☐ Distance from trunk _____

Root plate lifting ☐ Soil weakness ☐

Response growth _____

Main concern(s) _____

Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☐

Likelihood of failure

Improbable ☐ Possible ☐ Probable ☐ Imminent ☐

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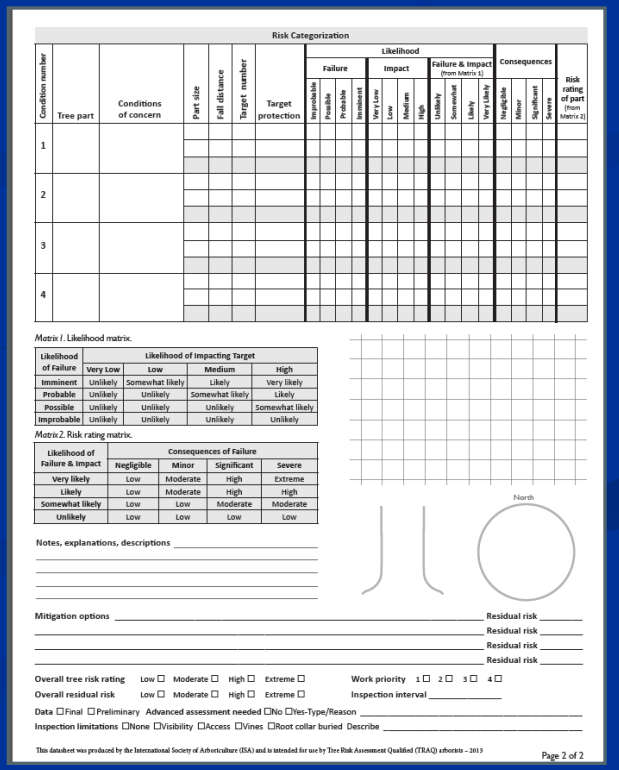

Risk Categorization

Condition number	Tree part	Conditions of concern	Part size	Fall distance	Target number	Target protection	Likelihood: Failure: Improbable	Failure: Possible	Failure: Probable	Failure: Imminent	Impact: Very Low	Impact: Low	Impact: Medium	Impact: High	Failure & Impact (from Matrix 1): Unlikely	Somewhat likely	Likely	Very Likely	Consequences: Negligible	Minor	Significant	Severe	Risk rating of part (from Matrix 2)
1																							
2																							
3																							
4																							

Matrix 1. Likelihood matrix.

Likelihood of Failure	Likelihood of Impacting Target: Very Low	Low	Medium	High
Imminent	Unlikely	Somewhat likely	Likely	Very likely
Probable	Unlikely	Unlikely	Somewhat likely	Likely
Possible	Unlikely	Unlikely	Unlikely	Somewhat likely
Improbable	Unlikely	Unlikely	Unlikely	Unlikely

Matrix 2. Risk rating matrix.

Likelihood of Failure & Impact	Consequences of Failure: Negligible	Minor	Significant	Severe
Very likely	Low	Moderate	High	Extreme
Likely	Low	Moderate	High	High
Somewhat likely	Low	Low	Moderate	Moderate
Unlikely	Low	Low	Low	Low

Notes, explanations, descriptions _____

North

Mitigation options _____ Residual risk _____

Residual risk _____

Residual risk _____

Residual risk _____

Overall tree risk rating Low ☐ Moderate ☐ High ☐ Extreme ☐ Work priority 1 ☐ 2 ☐ 3 ☐ 4 ☐

Overall residual risk Low ☐ Moderate ☐ High ☐ Extreme ☐ Inspection interval _____

Data ☐ Final ☐ Preliminary Advanced assessment needed ☐ No ☐ Yes-Type/Reason _____

Inspection limitations ☐ None ☐ Visibility ☐ Access ☐ Vines ☐ Root collar buried Describe _____

This datasheet was produced by the International Society of Arboriculture (ISA) and is intended for use by Tree Risk Assessment Qualified (TRAQ) arborists – 2013

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We do the evaluation, client makes the decision

Fear of Death?

(western countries)

- **Average life expectancy:**
  - 1900 - 46 years
  - 1930 - 59 years
    (SS act 1935 – age 62)
  - 1980 - 74 years
  - 2000 - 78 years
  - 2014 - 80 years

- 1900 - 14% of children did not reach 5th birthday (1 in 7)
- 1997 - 0.58% (1 in 172)

Today is the safest time in human history to be alive!

What is killing us now?

- Diseases of old age
- Household falls
- Industrial age accidents (autos)

At age 73 he said,
“I had a great time!”

Things We Fear Most

a) breast cancer (most significant factor is age)

b) Nuclear power plants (Chernobyl ≈9,000; annually melanoma in US ≈10,000)

c) cell phone (radiation) more than X-rays

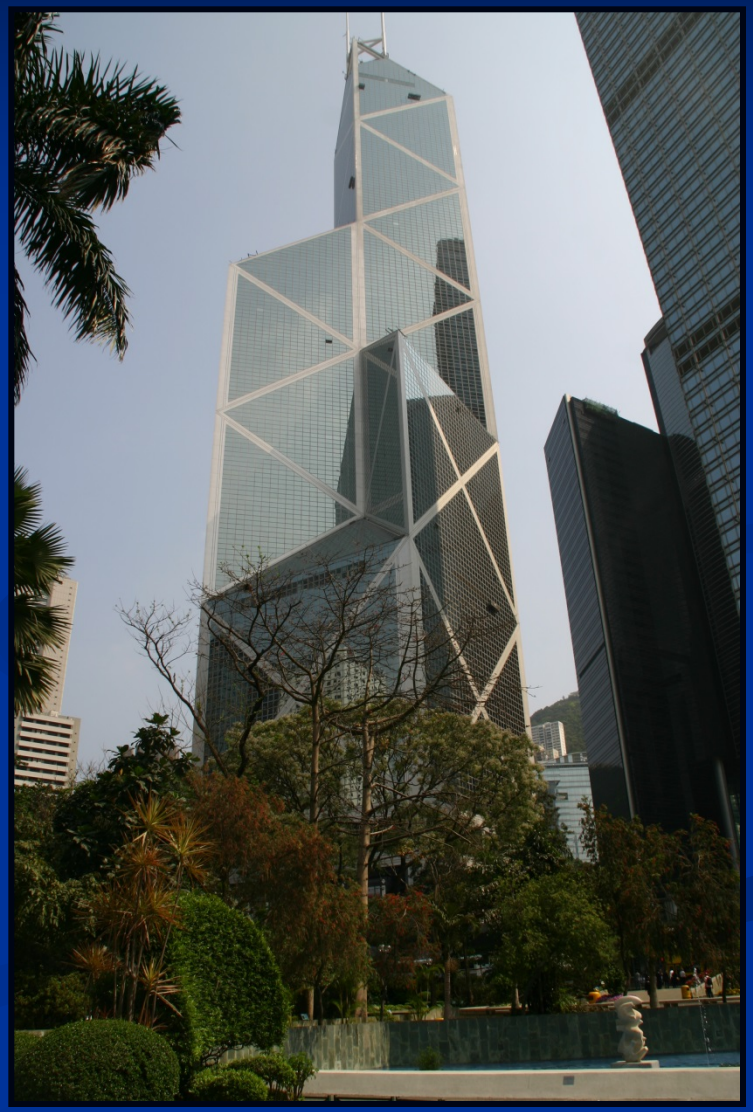
d) GMO foods

e) Handguns vs driving to work or obesity or diabetes

f) 9/11 deaths are 1/5th the # of Americans killed each year by criminals

Western urbanites expect:

- Creature comforts, food, amenities.
- Absolute safety from things we fear.
- Government responsibility for personal protection.



ST27.7.07 pg H3

Misadventure: 2 killed by falling tree, branch

Bad weather to blame for woman hit by toppling tree, man struck by falling branch

By Elena Chong
Court Correspondent

NO ONE is to blame for the recent accidental deaths of two people who were struck by a tree and a branch in nature reserves earlier this year.

In both cases, conditions were similar – heavy rains coupled with gusty winds.

Separate coroner's inquiries into the deaths of dental assistant Ho Siew Lan, 42, and software engineer Nguyen Ngoc Quang, 25, a permanent resident here, were heard yesterday.

In recording a verdict of misadventure in both cases, State Coroner Ronald Gwee said the incidents were the result of a combination of forces of nature. He noted that after the May 15 incident involving Madam Ho, the National Parks Board had taken further action to prevent future occurrences.

"I am satisfied that the steps taken by the National Parks Board after the incident will help to minimise the chances of this occurring in the future," he said.

Early that morning, the mother of two was out on her usual morning walk at Bukit Batok Nature Park when the sky turned dark.

At the park entrance at Bukit Batok East Avenue 3, Madam Ho met Madam Ting Kim Hong, 46, who was on her way out.

Later, the two met again inside the park and decided to call off their walk when it started pouring and the winds grew stronger.

Senior Station Inspector Tan Kah Kiat from Jurong Police Division said in his investigation report that the two women then bumped into Madam Leong Lai Meng, 48, along a footpath.

At that moment, Madam Leong saw a huge tree falling towards her, while Madam Ting heard cracking sounds. Before they could react, the tree fell and pinned the trio down.

Senior Station Insp Tan said Madam Leong, who had minor injuries, crawled out and sought help from a park user.

Meanwhile, Madam Ting, who had been lying motionless with Madam Ho, regained consciousness and limped out of the park. The two were treated as outpatients.

Madam Ho was later pronounced dead by a paramedic officer.

According to a meteorological report, moderate to very heavy showers with thunder and gusty winds up to 70kmh had occurred at the time.

Since then, NParks has intensified tree inspection in Bukit Batok Nature Park, provided a weather alert link on its website, and installed weather alert signage at strategic locations.

In the other case, Mr Quang was trekking with his younger brother and three friends on the Petaling Trail in the Central Catchment Nature Reserve when a 1.58m-long tree branch fell on him on May 31.

It had been drizzling with strong winds when the five arrived at the TreeTop Walk – a 250m-long suspension bridge linking the two highest points in the area.

It was raining heavily when Mr Quang's brother, who was walking behind, saw the branch fall and hit his sibling.

Mr Quang died at the scene of a head injury.

The NParks management has since decided to close the TreeTop Walk in the event of lightning and thunderstorms. Weather signage to warn visitors not to continue trekking during bad weather has been installed and rain shelters with lightning protection at strategic locations along the trail will be built.

elena@sph.com.sg

ST FILE PHOTO

AT BUKIT BATOK NATURE PARK: Madam Ho (above) was struck by a falling tree (left) while taking a morning walk on May 15.

ZAOBAO FILE PHOTO

AT CENTRAL CATCHMENT NATURE RESERVE: Mr Nguyen Ngoc Quang died on May 31 near TreeTop Walk when a falling branch hit him.

FURTHER PRECAUTIONS

"I am satisfied that the steps taken by the National Parks Board after the incident will help to minimise the chances of this occurring in the future."

STATE CORONER RONALD GWEE, noting that after the Bukit Batok incident, NParks has stepped up tree inspection in the park and put up weather alert signage at strategic spots

First line of newspaper article:

"No one is to blame for the recent (separate) accidental deaths of two people struck by a tree and a branch in nature reserves earlier this year."

later in article:

the coroner said "…the incidents were the result of a combination of forces of nature."

Closing line of article:

"The NParks management (municipal arborists) has since decided to close the TreeTop Walk in the event of lightning and thunderstorms. Weather signage to warn visitors not to continue trekking during bad weather has been installed and lightning protection at strategic locations along the trail will be built."

What TRAQ Offers You:

- Qualitative (not quantitative) Assessment.
- Client determines their tolerance for risk.
- We offer mitigation options.
- Client makes decisions and assumes liability.

- **Risk Rating:**
  - ➢ Extreme
  - ➢ High
  - ➢ Moderate
  - ➢ Low

So, Would you have flown 9/12/01?

New York

Shanksville PA

Pentagon

What does 1,595 mean?

1,595

The calculated number of people killed in automobile accidents in the 12 months following Sept. 11, 2001 who opted to drive rather than fly.

(53.5% of the 2,983 killed in 4 attacks on 9/11)

1,595

- If terrorists were hijacking and crashing 1 passenger plane each week and you flew once a month your odds of being killed are **1:135,000**

1,595

- If terrorists were hijacking and crashing 1 passenger plane each week and you flew once a month your odds of being killed are **1:135,000**
- If you are an average driver in the US your odds of being killed in any given year are **1:6,000**.

  (22.5 times higher!)

1,595

- If terrorists were hijacking and crashing 1 passenger plane each week and you flew once a month your odds of being killed are **1:135,000**
- If you are an average driver in the US your odds of being killed in any given year are **1:6,000**.

  (22.5 times higher!)
- 1,595 is 6.5 times higher than all 9/11 **passenger** deaths on the 4 planes (246).

TRAQ and Risk

- Qualitative assessment
- Target focused
- Puts risk in perspective
- Client makes decisions
- ∴ Reduces potential liability for arborist
- **Message:** Trees give us benefits we can't live without.

Fear of tree failures:

I am an old man and have known a great many troubles, but most of them never happened.

- Mark Twain

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Additional notes

- If you're American, you have a greater chance being killed by furniture (http://www.vox.com/2014/10/17/6988377/threats-to-americans-ranked-ebola-isis-russia-furniture),
- pizza boxes (http://mic.com/articles/101696/your-pizza-is-probably-a-greater-threat-to-your-health-than-ebola), and
- sand castles (http://www.theguardian.com/world/2007/jun/22/usa.travelnews) than by Ebola