Special Hazards in the Backcountry

The real dangers versus the imagined dangers

- What do people fear?

- What people should fear?
  - Ignorance can block life-saving fear.

- The challenge in wilderness is separating fact from myth (often media created) and making the best decisions to insure your safety.
Lightning Danger

Under appreciated destruction

- Lightning Kills an Average of 360 people per year and injures 500.
  - .42 per million people
- Lightning Kills its victims one at a time
  - 91% deaths are single victim
  - Males 84% of victims
- Lightning is a random phenomena
- Lightning is a predictable phenomena
  - Cumulonimbus clouds

Types of Lightning

- Cloud to Ground
- Intra Cloud (most common)
- Inter Cloud
Lightning Trivia

Interesting and maybe Important?

- Why don’t you hear “heat lightning”?
- Can you prevent lightning strikes from occurring?
- When during the storm do most ground discharges occur?
- Have you heard the “pop” before the “boom”?
- How big around is lightning?
- Why do you hear ‘rolling thunder’?

The Real Hot Spots in the U.S.
Safety Guidelines for Lightning

- Always err on the side of caution ... a mistake could be tragic.
- Listen to advance weather reports . . . and know “local weather” patterns.
- Have an evacuation plan to a safer place
- Evacuate at first warning
  - If you can hear it, clear it. If you can see it, flee it.
  - First thunder cloud siting
  - First sound of thunder (30 second minimum/ 6 miles)
  - First electrostatic activity - hair, sparks, St. Elmos
- Seek training in CPR
  - Recovery after the first few minutes is rare (20-30 max)

Where to go to be safe?

- Avoid higher points
  - Ridges, peaks, open space
- Avoid discharge path ways
  - Base of large trees, water drainage areas
- Find a protected area such as uniform tree cover
- The lightning shield area
Dangers of Snow

Snow Fields, Avalanches, Crevasses

**Snow Fields**
- Evaluate their run-out
- Procedure for safe crossing of snow fields
  - Ice Axe and self arrest technique (take RTM 151C)
  - Belay party members across

**Crevasses**
- Glacier travel protocols
  - Roped travel, ice axe, ascenders
- Pursue special training

Avalanches

Dangers of Snow

- Pursue special training
- Key Snow load factors
  - Snow accumulation
    - Rate/ History/ Wind
  - Slope steepness
    - 30/45/60/90. Zone B & C most dangerous.
    - 42 degrees optimal avalanche slope.
- Avoiding avalanche
  - Stay put
  - Traverse procedures
    - Trees/ Top/ Ropes/ Beacons
Bears

Types and Dangers

- Black Bears
  - Wild Black Bears
  - Garbage Black Bears
- Grizzly Bears
- Polar Bears
Black Bears

Backcountry Practice in Black Bear Areas

- **Food Protection**
  - 9 feet high/ 4 feet off trunk
  - Counter balance hang the best
  - Use special bear containers
    - Required in Sequoia & Yosemite

- **Be aggressive to protect your food (bluff well)**

- **In case of attack**
  - Play dead/ pepper spray

Grizzly Bear - Avoidance

Backcountry Practice in Grizzly Areas

- **Avoiding Encounters**
  - Make noise
    - Sing/ Talk/ Clap as move through key habitats
    - Water is loud
  - Travel in groups
  - Pay attention
    - Sightings/ signs/ dead animals
    - Head winds/ thick cover
Grizzly Bear - Avoidance

Backcountry Practice in Grizzly Areas

- Avoiding Encounters
  - Separate cooking area, sleeping area, food storage area in triangle pattern (100 yds from pts A,B,C)
  - Use bear canisters or hang food & cookware (12 ft high/ 4 ft off tree with equalizer hang technique)
  - Hang deodorants, toothpaste, etc.
  - Remove cook’s clothes
  - Avoid sex and menstruation

Grizzly Bear - Encounter

What to do if you meet along the trail?

- Stay calm
- Pick up children
- Stand together
- Back away slowly and don’t run
- Talk calmly and firmly (sing)
Grizzly Bear - Under attack

What to do if it's a bad bear day?

- Consider Playing Dead
  - If attack does not subside reconsider quickly

- Fight or flight for your life
  - If bear stalks you & then attacks
  - If attack comes at night

- Pepper spray (footnote)

- Intimidation - grizzly body language

Cougar (Mountain Lion)

- If a “Face off”
  - Look “big”
  - Calmly retreat - do not run
  - Pick up small children

- If an Attack
  - Shout/scream
  - Defend yourself
  - “It’s your life!”
So how ya gonna die?

- **Illness # 1 Killer -** If you’re in the over 45 crowd
  - #1 is heart disease - 276/100,000
  - # 2 is cancer - 187/100,000

- **Accidents # 1 Killer of Young Adults**

- **Murder death rate -** 5.6/100,000 in U.S. (17/100K L.A.)

- **Automobile death rate -** over 43,000 deaths per year
  - Pedestrians = 1.7 /100,000
  - Vehicle Accident = 16.5/100,000

- **Outdoor Deaths**
  - Lightning = .124/100,000 (360 per year - U.S.)
  - Bears = .001/100,000 (6 per year North America)
  - Mountain Lions = .0003/100,000 (1 per year N.A)

- **Stay clear**
- **Back off**
- **Run & hide**
Poisonous Snakes

How to avoid getting bit & what if it happens

- **Avoidance**
  - Pay attention
  - Cold blooded behavior

- **First Aid**
  - Relax
    - few die; 25% no venom; 12 deaths per yr; 8000 bites
  - Restrictive bands
  - No cut / No cold
  - Retrieve snake if already dead (reasonable)
  - Transport
Stream Crossings

- If it boils above the knee = danger
- Water footwear
- Tripod position
- Train position
- Belay crossing if necessary

Bees and Other Stings

- Anaphylactic shock (anaphylaxis)
  - 1-2% extreme reaction
- Response: epinephrine (prescription)
  - Slow reaction protocol
- Honey bees / Wasps / Yellow jackets
  - Removal of stinger / Charge it!
  - Meat tenderizer
- Africanized honey bee (killer bees)
**Tics**

- **Wood ticks/ Dog Tick**
  - Rock mountain spotted fever
  - Tularemia / Tulare fever

- **Black legged tick**
  - Lyme disease
    - Early symptoms:
      - skin reaction
      - flu like onset
    - Needs early response

**Mosquitos**

- **West Nile Virus** ([westnile.ca.gov](http://westnile.ca.gov))
  - 2007 YTD 147 cases with 8 deaths.

- **Encephalitis**
  - Headache/ high fever/ stupor/ coma/ tremors

- **Malaria**
  - Shaking/ high fever/ sweat/ headache

- **Protection**
  - Stop breathing!! (CO2 factor)
  - Wind/ rain/ clothing
  - 100% DEET / Natrapel/ Avon
Altitude Hazards

How to avoid the dangers

- **Acclimatize**
  - High altitude climbing - Go Slow - 1000 ft per day
  - Fluids/ fluids/ fluids
  - No overexertion
  - Avoid weakened immune system

Acute Mountain Sickness

- **Symptoms**
  - Headache/ nausea/ insomnia/ lack of appetite/ edema
- Onset as low as 5,000 ft/ average 8-10,000 ft
- Response - go down/ rest
High Altitude Pulmonary Edema (HAPE)

- **Symptoms**
  - Increase respirations
  - breathlessness
  - dry cough
  - rapid pulse

- **Onset:**
  - 9,000 ft earlier
  - average 12,000 ft. - variable

- **Response:** go down immediately

High Altitude Cerebral Edema (HACE)

- **Symptoms**
  - Headache
  - Ataxia
  - Vomiting

- **Onset:** 12,000 ft and higher

- **Response:** go down immediately