

# ***Lightning Safety***



MANSCEN Safety Office

(573) 596-0116

## ***Lightning Facts***

2<sup>nd</sup> Leading Cause of Weather Deaths in the United States

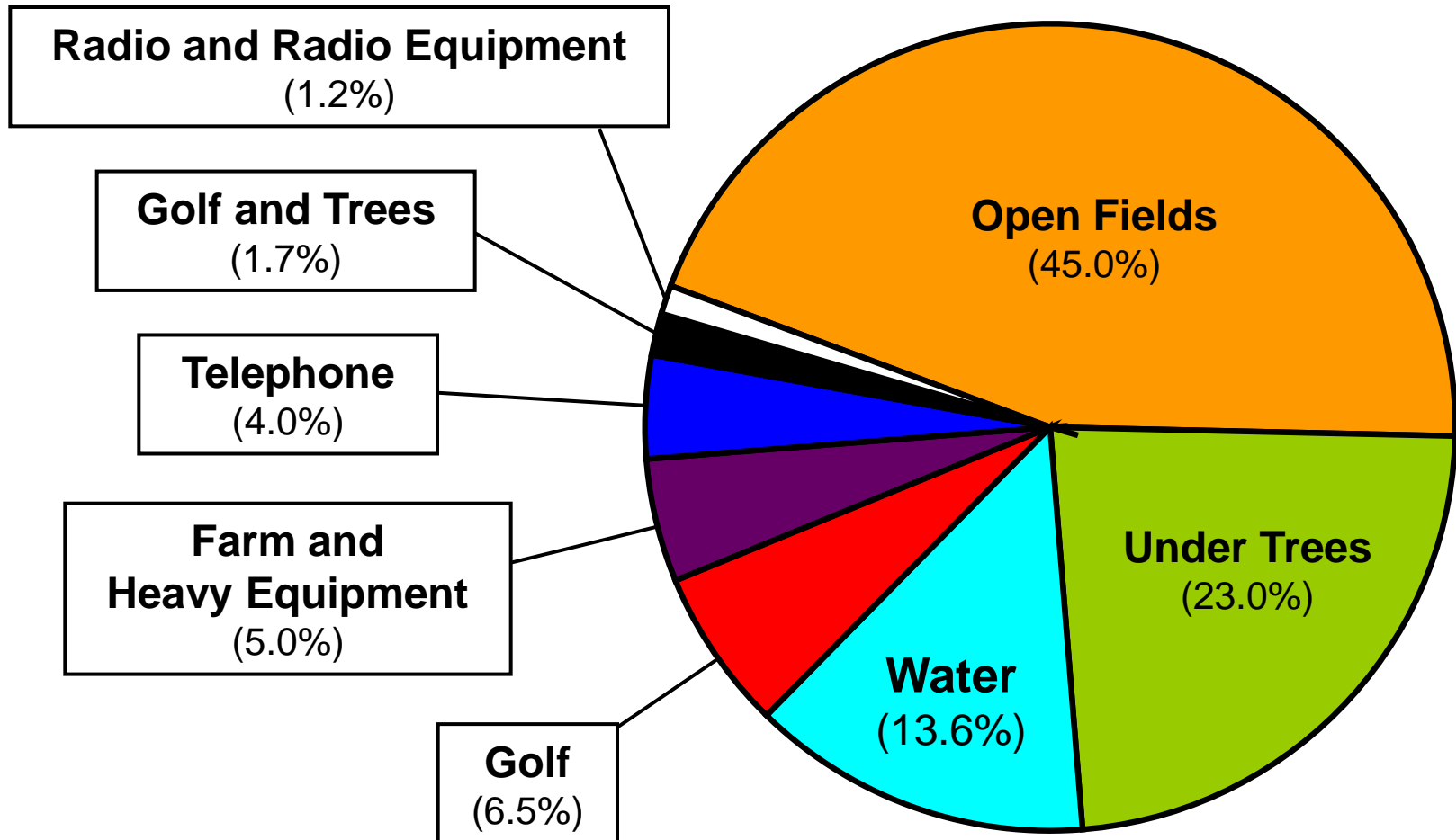
- **Kills ~ 100 / Year**
- **Kills ~ 10% of those Struck**

# ***Lightning Facts***

**Survivors are an even greater tragedy!**

- **Injures ~750 / Year**
- **~ 70% Long-Term Medical Problems**
- **~ 30% Suffer Debilitating Problems**
- **Elusive Data**
  - **40 - 70% Under-Reported**

# When thunderstorms nearby, avoid these activities like your life depends on it -- It Does!



# *Lightning Safety -- Outdoors*

If you can see lightning or hear thunder, activate your safety plan. Resume activities only when lightning and thunder have NOT been observed for thirty minutes.

***If you can see it (lightning), flee it; if you can hear it (thunder), clear it.***

- **“30 / 30 Rule”**
- If 30 Secs Or Less “Flash To Bang”- Seek Shelter

## COMMON MISCONCEPTION

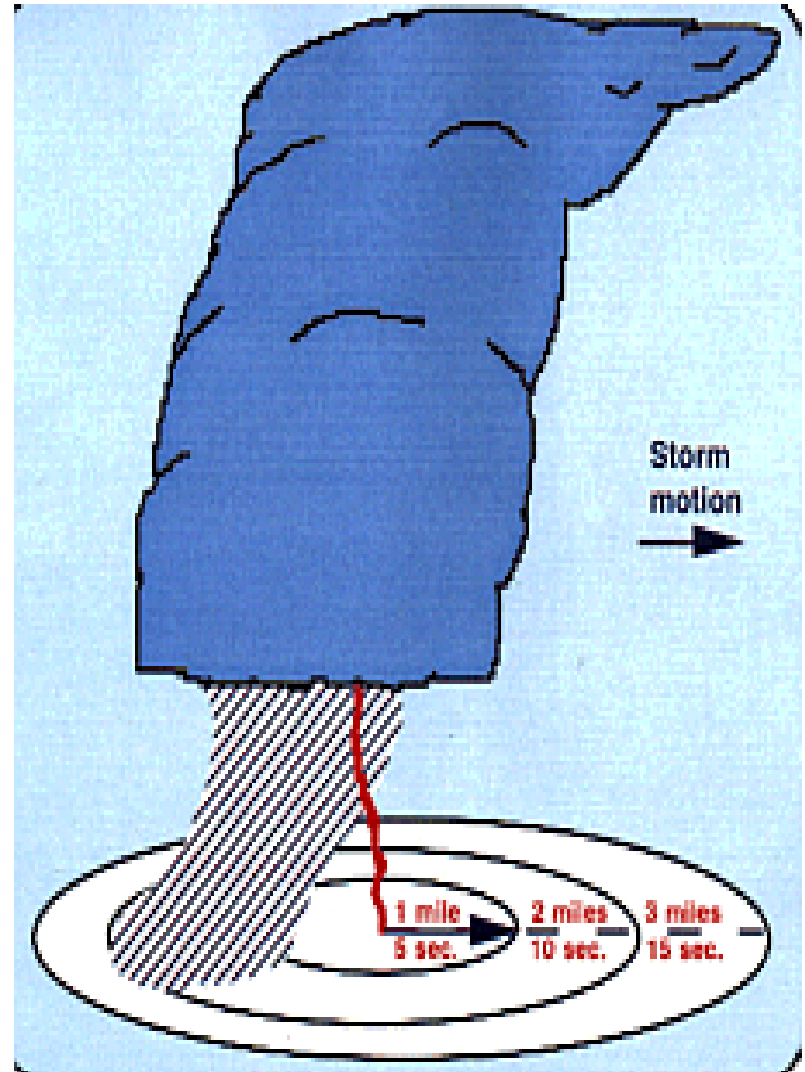
1 second = 1 mile

**ACTUALLY**

**5 seconds = 1 mile**

Wait 30 Min After Last  
Lightning, Before Leaving  
Shelter

**It May Seem Too  
Conservative--It's NOT!**



# ***Lightning Safety***

## **Important Components Of A Dispersal/Safety Plan**

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- **Designated individual responsible to monitor the weather and initiate the necessary precautions when appropriate.**
- **Procedure identified to notify all personnel of the appropriate actions when there is a threat or risk of lightning.**

## ***Lightning Safety continued***

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- **Safer locations must be pre-identified along with a means to route personnel to those locations.**
- **Establishment of an “All Clear” signal which is differentiated from the warning signal.**
- **Periodically Review / Train / Drill Dispersal Plan**



# **Associated Hazards**

Contrary to common belief, most lightning accidents do not come from direct lightning strikes. There are several ways lightning can cause injury.

**COMMUNICATION**

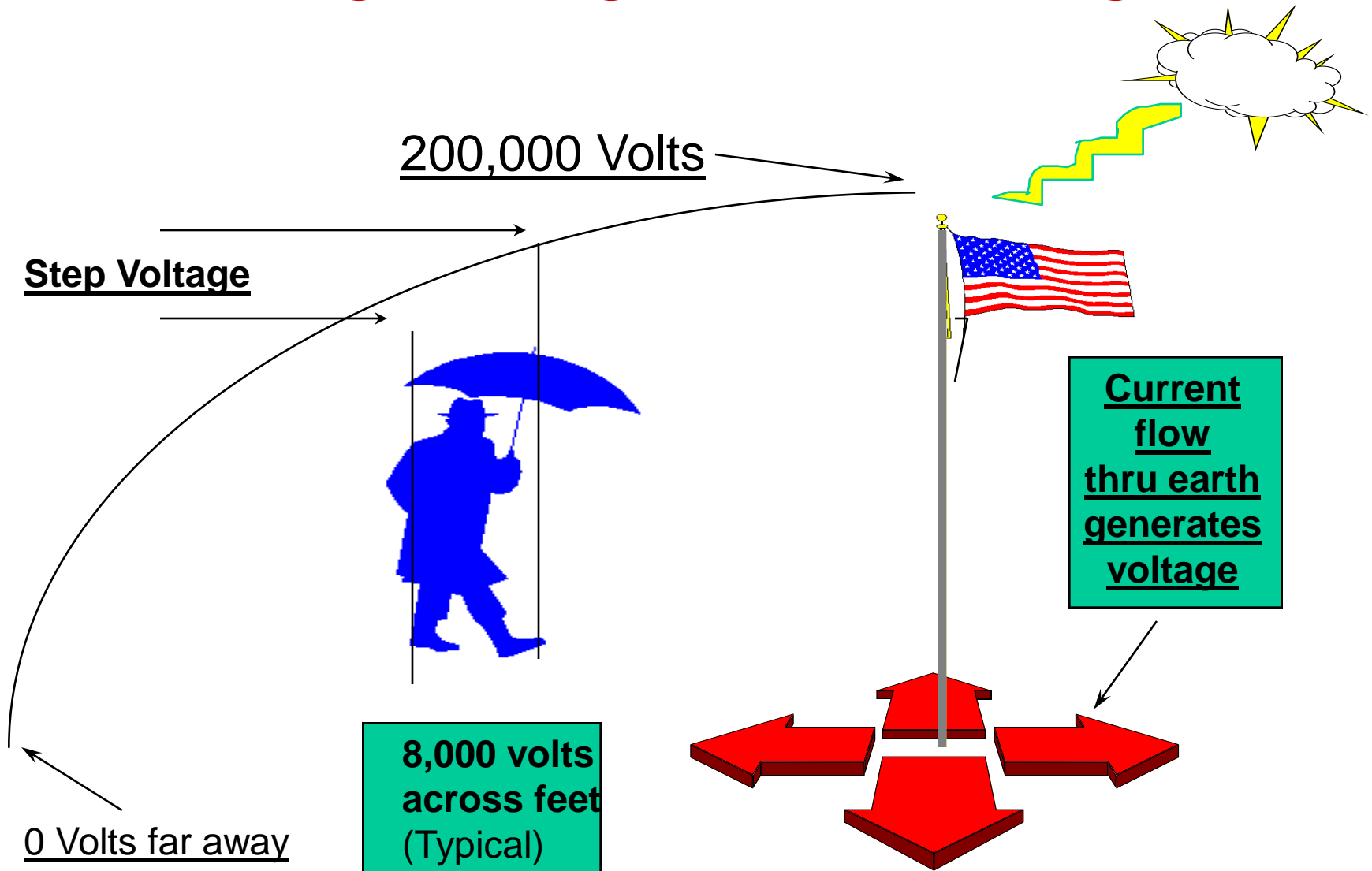
# **Tactical Communication**

- Equipment will be grounded IAW grounding instructions contained in applicable TMs. Remember that soil type impacts the grounding.
- Keep away from antennas, masts, guy wires and all grounding and lightning protection equipment, including ground rods, during electrical storm activity. This includes vehicles with whip antennas.

# Tactical Communication

- If mission permits, disconnect the signal inputs before the storm. Do not attempt this during the storm, even if lightning is not nearby!
- Restrict the use of telephones, computers and other electrical devices. Lightning could follow the wire. Most lightning injuries occur from using phones during electrical storms.
- Radios will not be used, nor will troops carry radios with antennas extended.

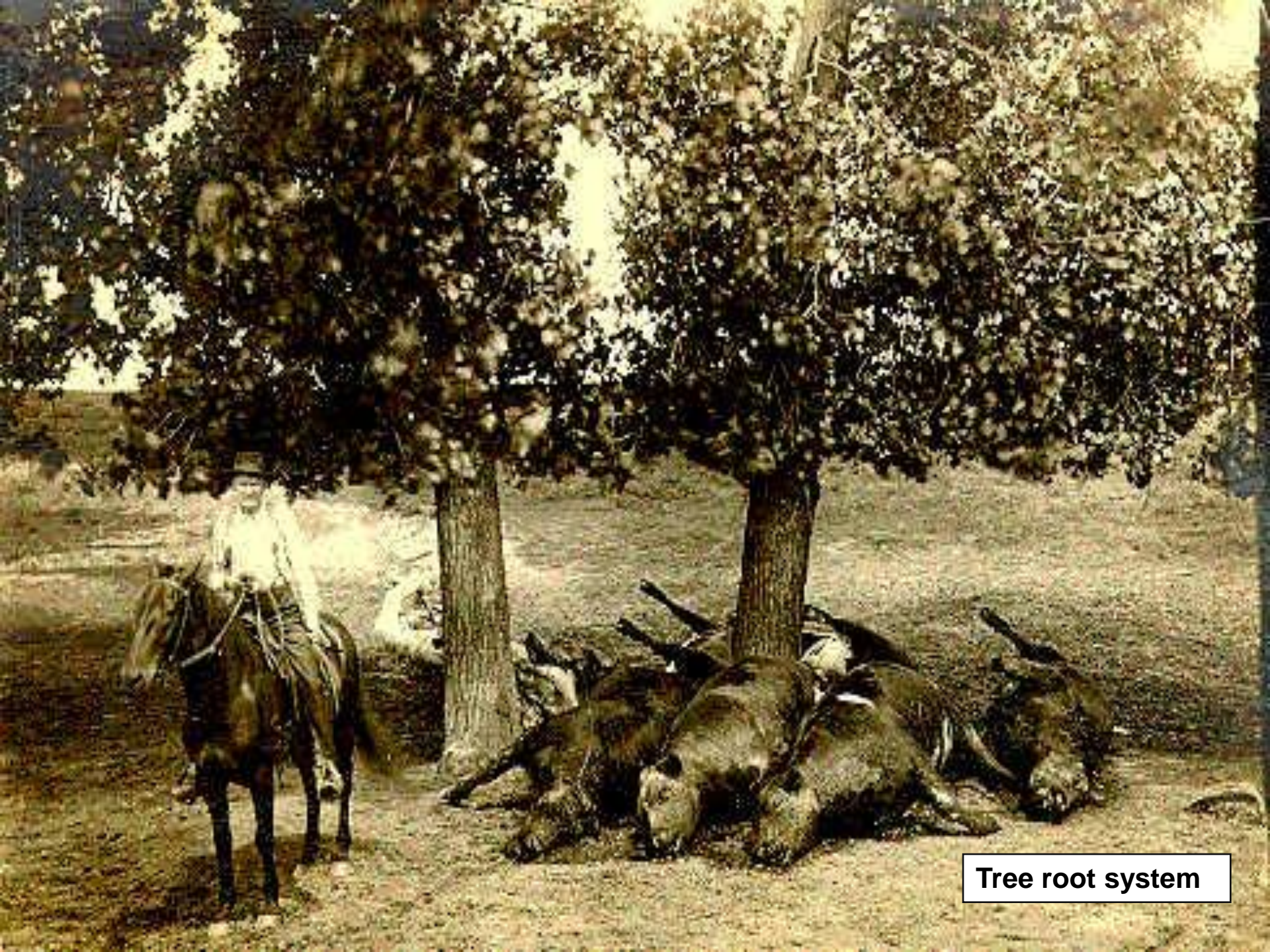
# Lightning Step Voltage





**Struck flag pole  
and dispersed**





Tree root system



# Safe Locations #1

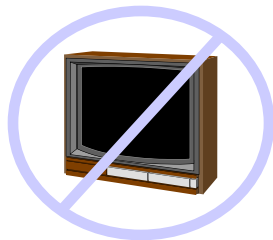
- No place is absolutely safe from lightning. Ideally, evacuation to a lightning certified or lightning protected building is the best when available; however, this will probably not be the case.



**THEN USE  
Large enclosed  
structures (substantially  
constructed buildings).**

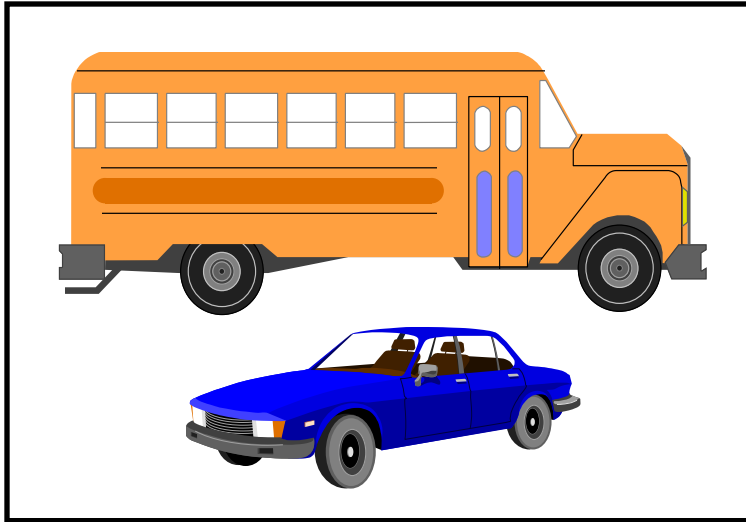
# Indoor Lightning Safety

- Avoid using telephone (remember the wires).
- Avoid using water – sink, tub, etc.  
(plumbing)
- Unplug appliances (remember the wires).
- Inner rooms the best





# Safe Locations #2



**Not** Canvas Type (soft) Tops

- Fully enclosed metal vehicles – car, bus, etc.
  - Close windows
  - Keep hands on lap

It's not the rubber tires that make a vehicle safe – it's the metal enclosure.

# Safe Locations #3

- Remaining Outdoors
  - Stay away from rivers, lakes, or other bodies of water. Be aware of the potential for flooding in low-lying areas.
  - Stay away from natural lightning rods/tall structures such as: towers, tall trees, telephone poles/lines, tents with metal supports, etc.
  - Take shelter under a small tree among several large ones if possible. Stay at least six feet away from the tree trunk to minimize a side strike and step voltage. NEVER stand under an isolated tree.

## Safe Locations #3 (con't)

- Stay low (crouch) in a ditch or depression. Other options include a low area, ravine, or foot of a hill. **DO NOT** lie flat on ground.
- Weapons should be stacked at least 50 meters away from personnel.
- Mils gear and other metal conductors should be removed.

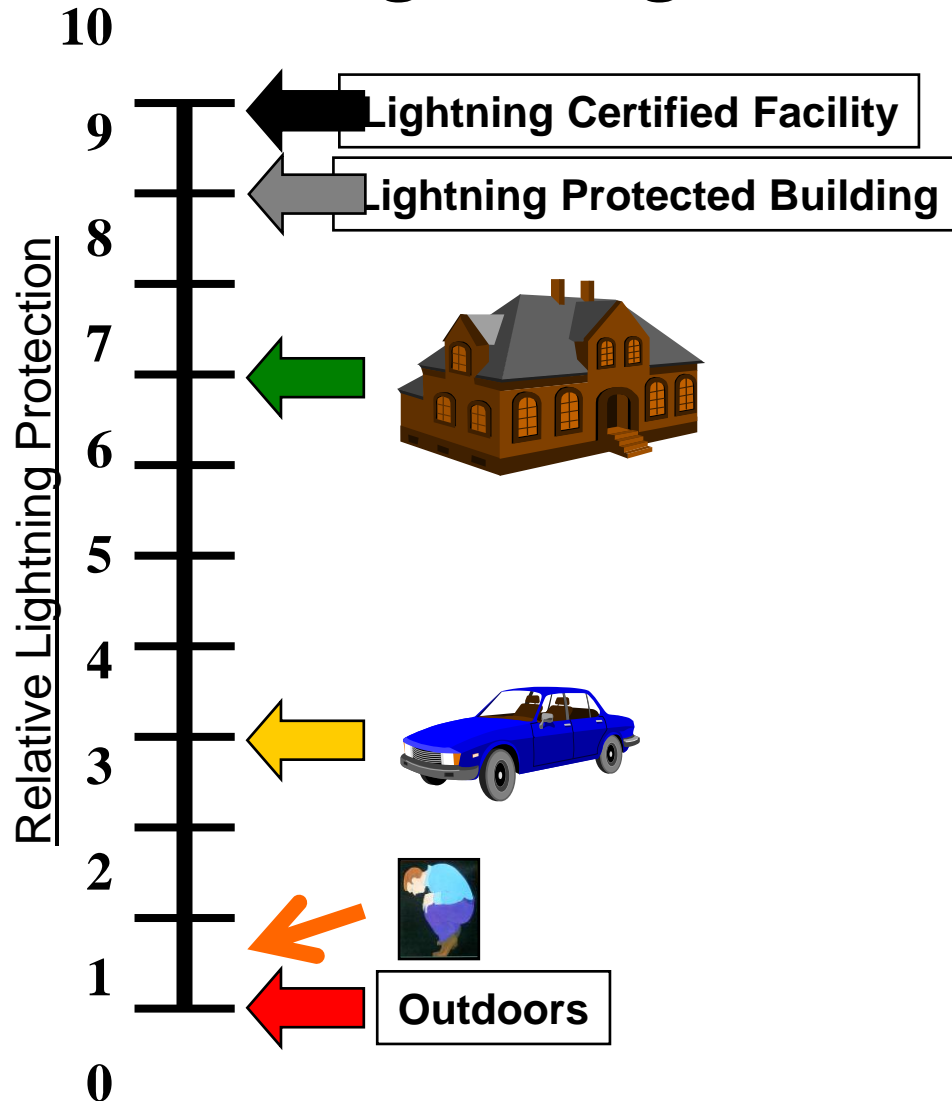
# Lightning Safety Position (LSP)

- Assume LSP.
- Crouch with feet as close together as possible.
- Have heels touch.
- Place hands over ears.



**-REMEMBER- DO NOT LIE FLAT ON THE GROUND**

# Lightning Safe Locations



## Seek Proper Shelter

- Buildings Much Better Than Vehicles
  - Large, Fully Enclosed, Substantially Built
- Vehicles Offer Some Safety
- No Place Outside Is Safe Near A Thunderstorm
  - Near  $\equiv$  6 Miles

# Lightning Safety Websites

- 45<sup>th</sup> Weather Squadron Lightning Safety Website:  
<http://www.patrick.af.mil/45og/45ws/LightningSafety/index.htm>
- NOAA Lightning Safety:  
<http://www.lightningsafety.noaa.gov/>
- CECOM Publications (Antenna Safety, Grounding, etc.)  
<http://www.monmouth.army.mil/cecom/safety/SYSTEM/SPUB.HTM>
- Kids' Lightning Information and Safety:  
<http://www.azstarnet.com/anubis/zaphome.htm>