



2024 UAA Ohio Safety Summit

June 20, 2024



Welcome & Safety Moment

- Frank McGraw; FirstEnergy



TREE Fund Update on Safety Research: Paul Putman; TREE Fund Executive Director





Cultivating Innovations in the Industry: Update on Safety Research

Tree Research and Education Endowment Fund (TREE Fund)

**Paul Putman, PhD
President/CEO**

TREE Fund is a 501(c)(3) charitable organization whose mission is to support scientific discovery and dissemination of new knowledge in the fields of arboriculture and urban forestry.



Our Roots:

Research Trust of the International
Society of Arboriculture (ISA)

+

The National Arborist Foundation
of the National Arborist
Association



Dedicated to discovering and disseminating knowledge in urban forestry and arboriculture



TREE Fund Grant Awards

TREE Fund has granted more than \$5.5 million since 2002 for:

- Scientific research on urban and community trees
- Education programs related to trees
- Scholarships for aspiring tree care professionals

For every \$1.00, TREE Fund grants attract, on average, an additional \$2.63 in research dollars.

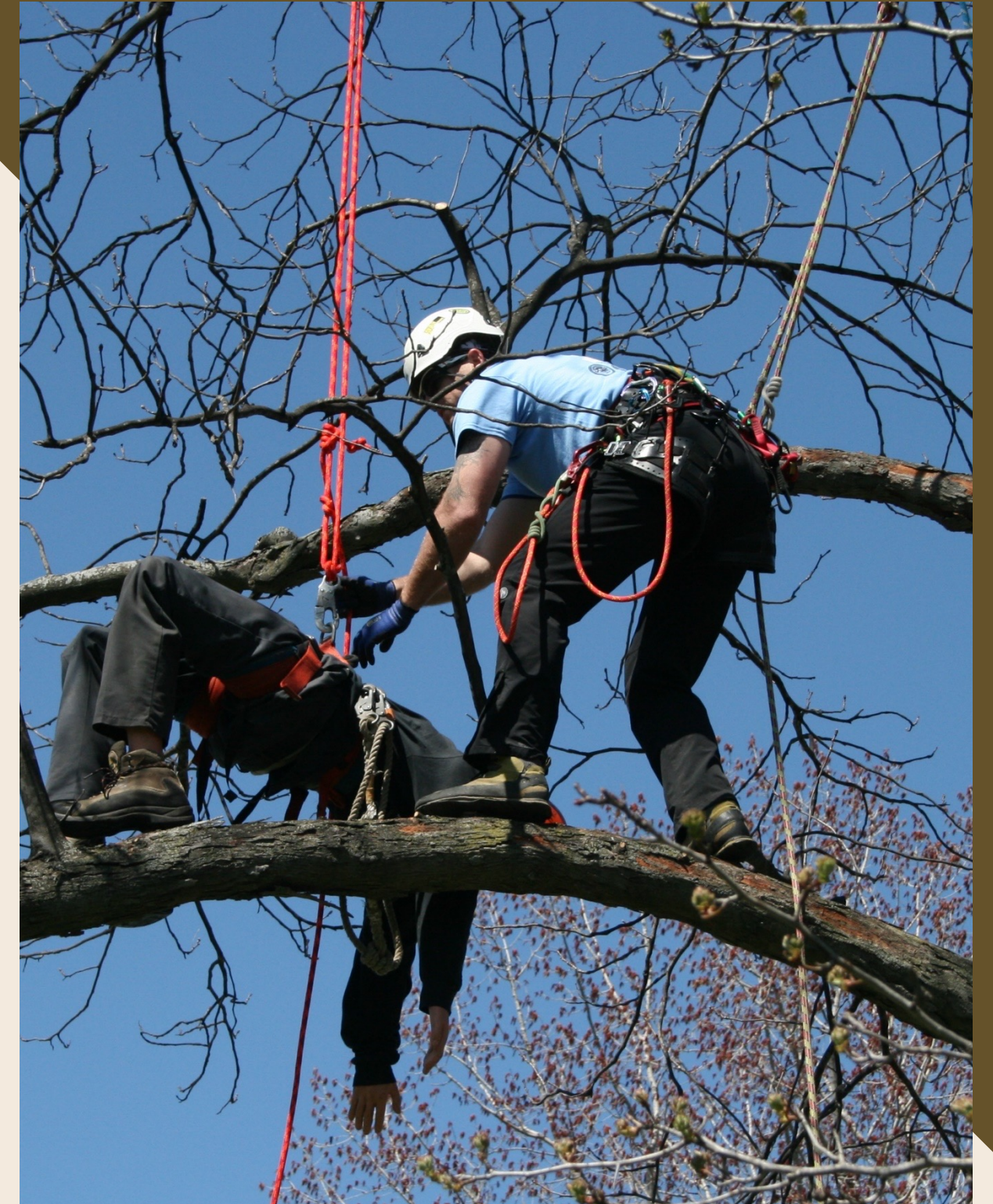




Utility Arborist Research Fund

Awards up to \$50,000 Annually

Finance work with real importance and benefit to utility tree care professionals



In Progress: “Determining failure characteristics from electrical distribution outage reports”

Gregory Dahle, PhD, West Virginia University College of Agriculture, Natural Resources and Design, Forestry and Natural Resources Dept
Award amount: \$49,940

Measurable outcomes include:

- (1) knowledge of the trees characteristics that are correlated to tree failures that cause outages,
- (2) develop protocol pertaining to the pertinent tree and site information to have during future outage reports,
- (3) lay the foundation for future collaboration on national or at least regional utility tree failure databases that will improve our ability to model and identify trees with elevate likelihoods of failure and thus reducing outages.



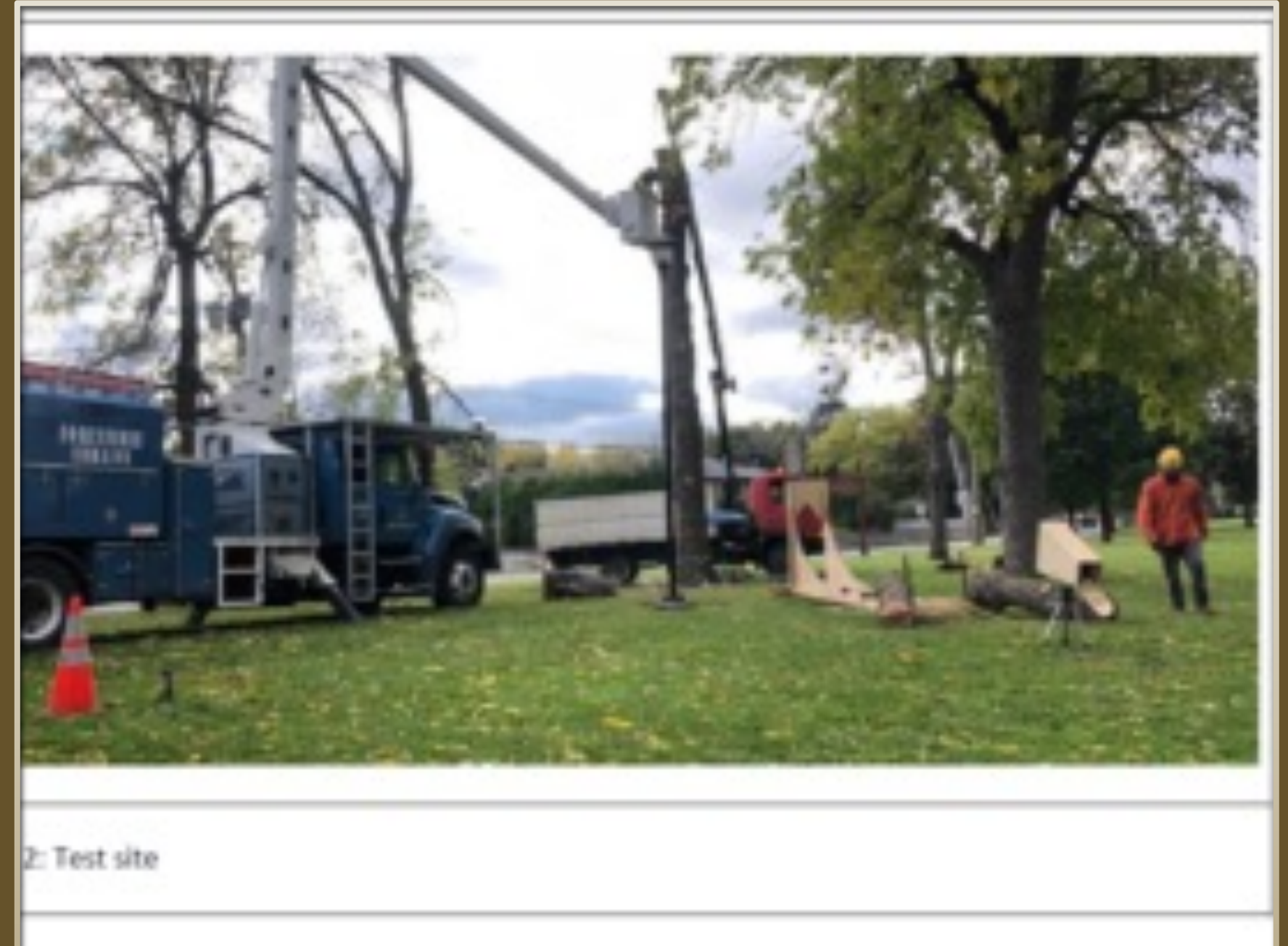


Matt Follett, Université du Québec à Montréal (UQAM)
Safe Arborists Technique
Fund Grant Program (2019)

Webinar: May 2024



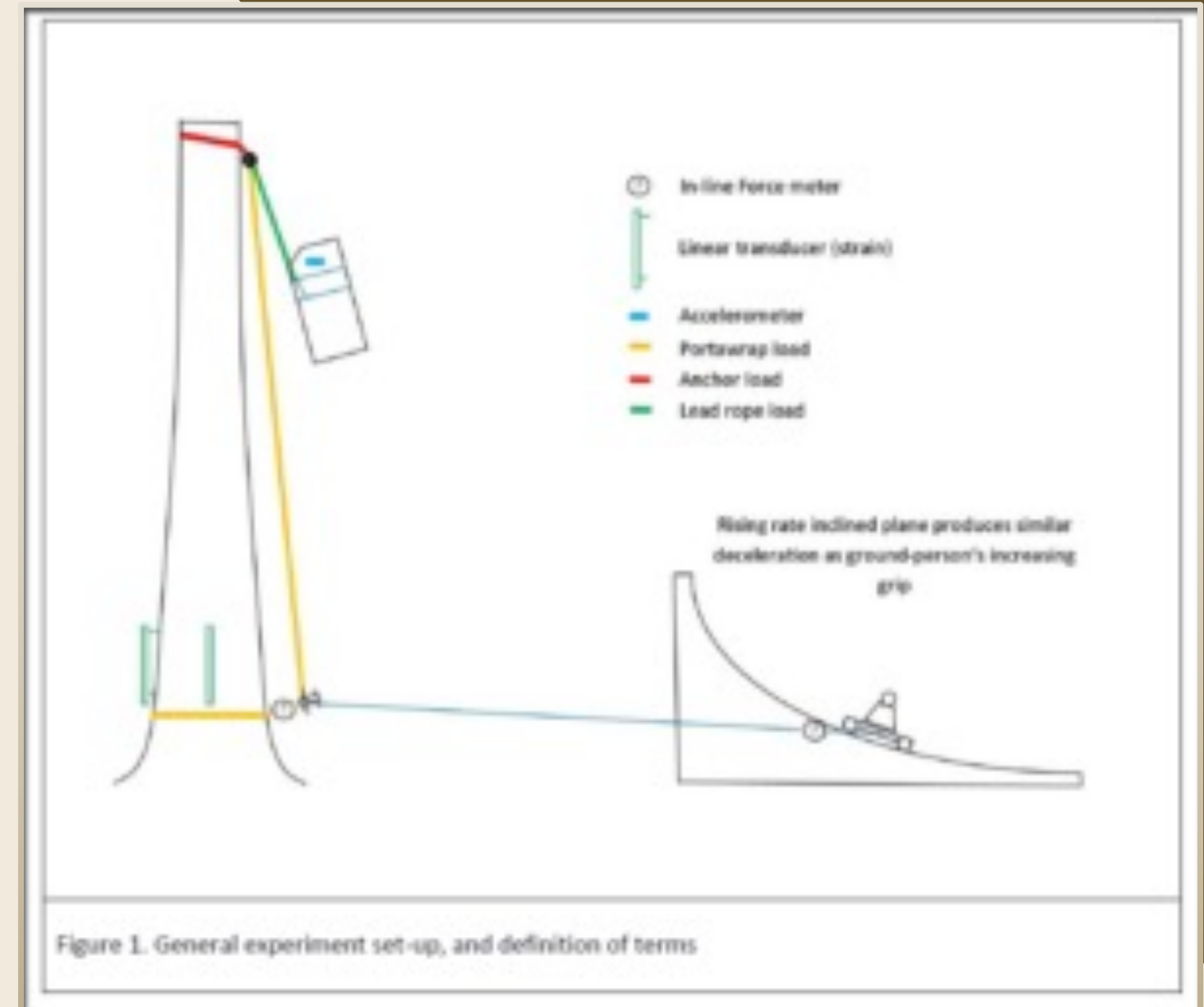
Recently Reported: “Evaluation of load distribution in removal operations: a comparison of techniques and equipment”



Recently Reported: “Evaluation of load distribution in removal operations: a comparison of techniques and equipment”

“...it would appear that in a running rope scenario, the use of rigging rings will reduce strain on the stem; however they may not reduce the load on the attachment point at the falling piece.”

-Matt Follett, Université du Québec à Montréal (UQAM)





Characterizing the Risk of Electrical Contact to Arborists

TREE Fund Grant #: 21-UARF-01
John Goodfellow and John Ball, PhD



2023 Webinar and PDF of full report and findings on the TREE Fund website,
www.treefund.org

“Cost of Deferred Maintenance”

“Crowning Achievements: Effect of Topping on Microclimate Conditions and Human Comfort”

“Building Urban Tree Resiliency by Mitigating Below Ground Infrastructure Techniques”

“Development of a Regional Research Approach to Modeling Tree Failure Risk Probability Affecting Distribution Overhead Lines”





Just Awarded: Improving Future Utility Vegetation Management Options by Developing a Public Collection of Open-Source Annotated Machine Learning Data Archive”

Dr. Paul Kinder, Jr.
West Virginia University





Webinar Series

Webinar Series features educational webinars from TREE Fund supported researchers.

Presenters are announced on a regular basis. Registration for each webinar will be available 2-3 weeks before the presentation date.

Most webinars offer 1 CEU for those watching live. Visit treefund.org/webinars for more info.





2024 Tour des Trees

Join TREE Fund at the 2024 Tour des Trees taking place in New England from **Sept. 22 through 28**.

Registration now open!

Ride 425 miles in southern New England and spread the love of all things trees. The 5-day route will begin in Stamford, CT, east to Martha's Vineyard, and finish in Providence, RI.

Visit treefund.org for more information and updates.

**RIDE TO SUPPORT
TREE RESEARCH IN 2024!**

September 22-28

Stamford, CT >
Martha's Vineyard >
Providence, RI



Roots and Routes of New England



Join your fellow tree enthusiasts for a five-day, 425 mile ride around southern New England at this year's Tour des Trees!

Ride with us, see the sights, and help support tree research.

Information and registration at
treefund.org/tourdestrees



Proceeds benefit
Tree Research and Education Endowment Fund
(TREE Fund)

www.treefund.org





Not able to make it out to New England this year for the Tour des Trees?

Set your own goals and bike, run, walk, or swim the same miles as the Tour des Trees on your own time.





Thank You!!

Cultivating Innovations in the Industry: Update on Safety Research

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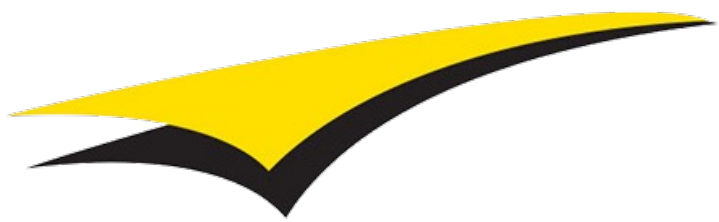
Trees Under Tension; Tim Walsh; The Townsend Company, LLC



Trees Under Tension:

What Goes Down,
Must Come Up

TOWNSEND





TOWNSEND



My Mission:
To bring everyone
home safely.
Everyday.



Much To Discuss.

- The Hazard
- Mitigation
- Science
- Training
- Best Practices



**What Not
To Do...**

The Hazard



Struck By
(Wire, Wood, Saw)



Fall

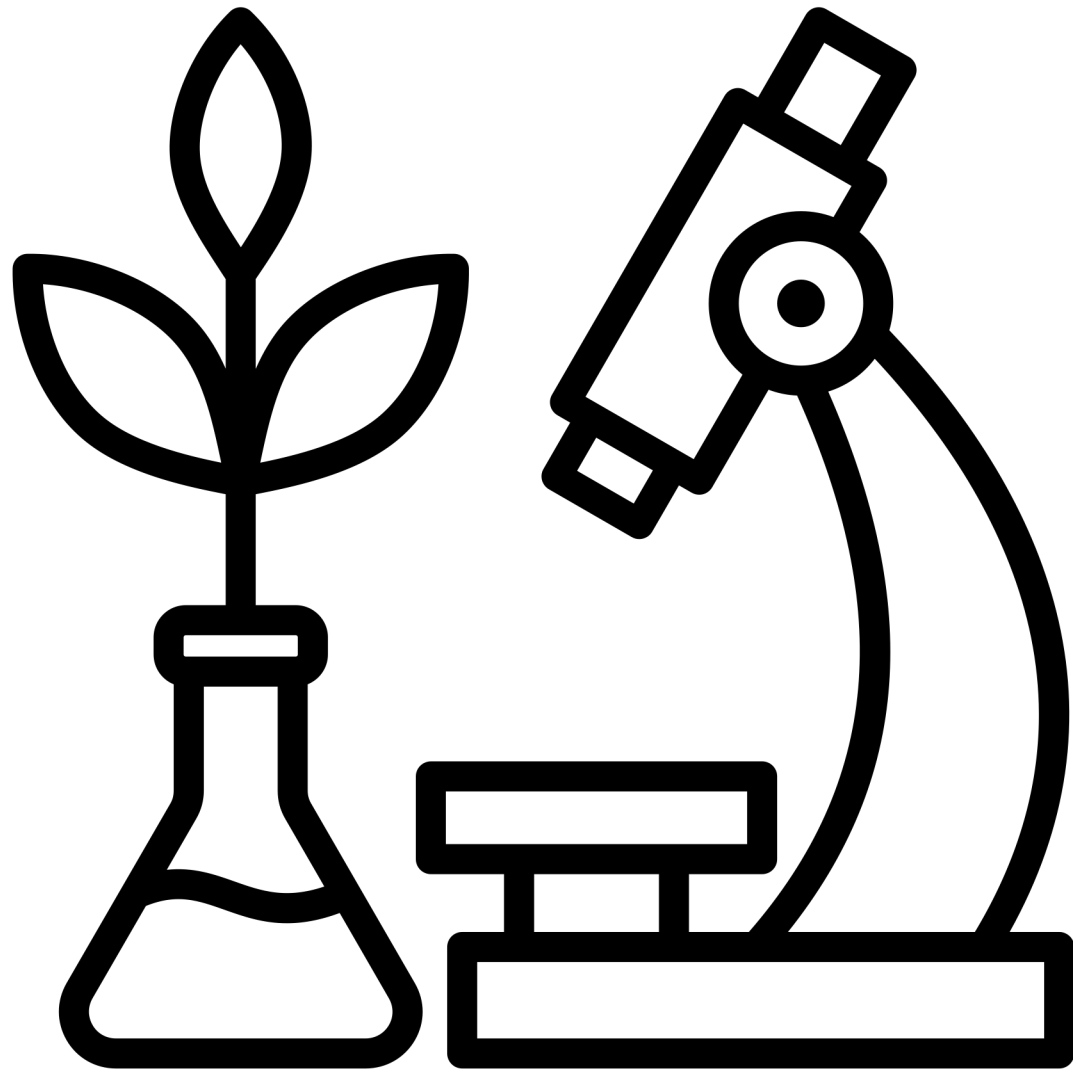


Electric Shock

Mitigation



Science!



What We Know

(or could find out)



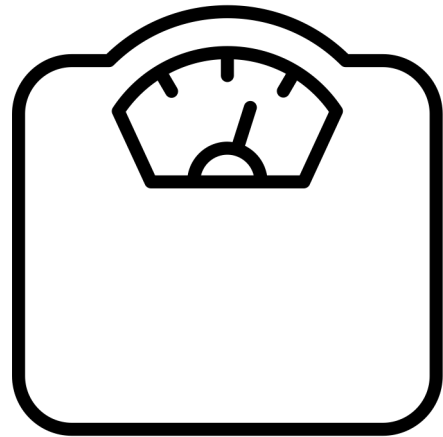
What we don't know

(so now what?)



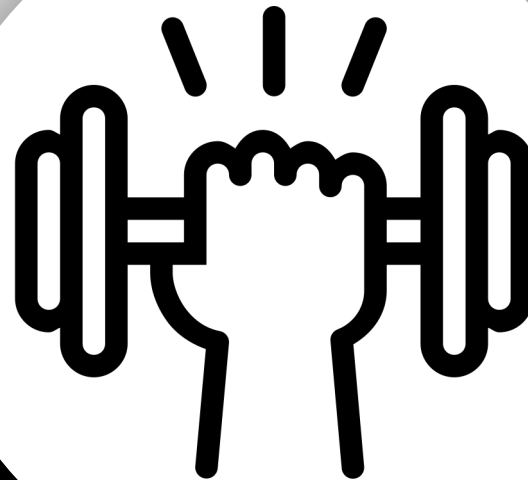
**What Do
We Know?**

What We Know



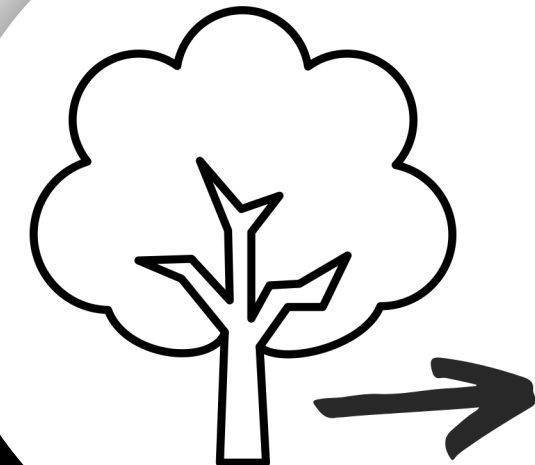
Weight

The approximate weight of the tree



Strength

•Strength of rigging equipment



Displacement

Displacement of wires

Estimated Log Weight Calculator

woodweb.com

The information provided in this presentation references the log weight calculator available at [WoodWeb](https://www.woodweb.com). Please note that the accuracy of the calculator's results has not been independently verified. The data and calculations are provided for informational purposes only. Users should exercise caution and use the information at their own risk. We do not accept responsibility for any decisions made based on the use of this calculator.





What Don't We Know?

The winning lottery numbers,
who is going to win the Stanley
Cup...and if Taylor Swift will make
it to the games...

What Don't We Know?



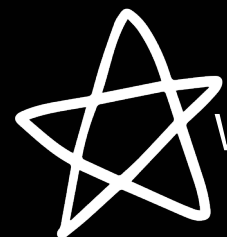
Actual Load

On wires, poles, hardware

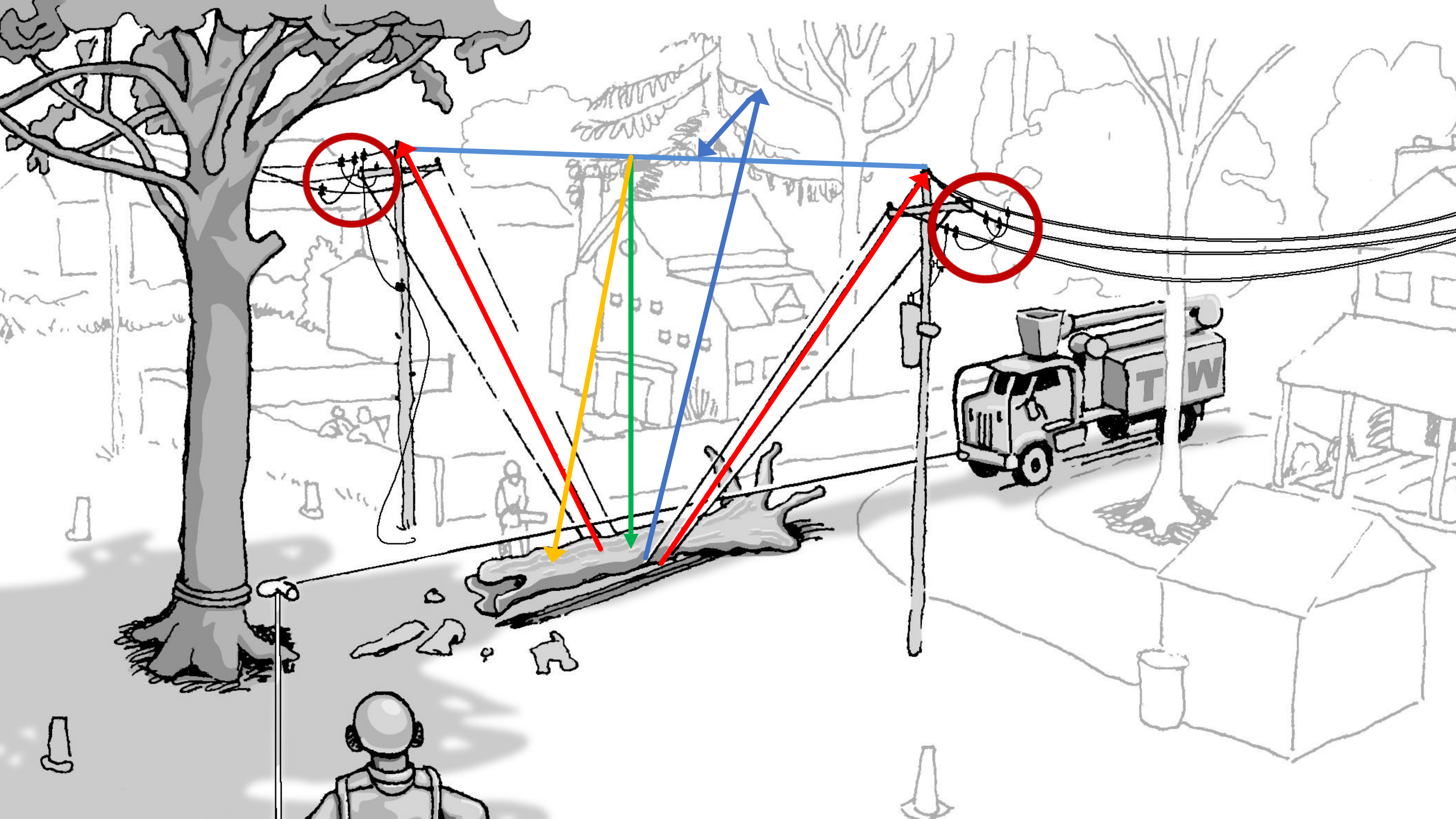


Failure Points

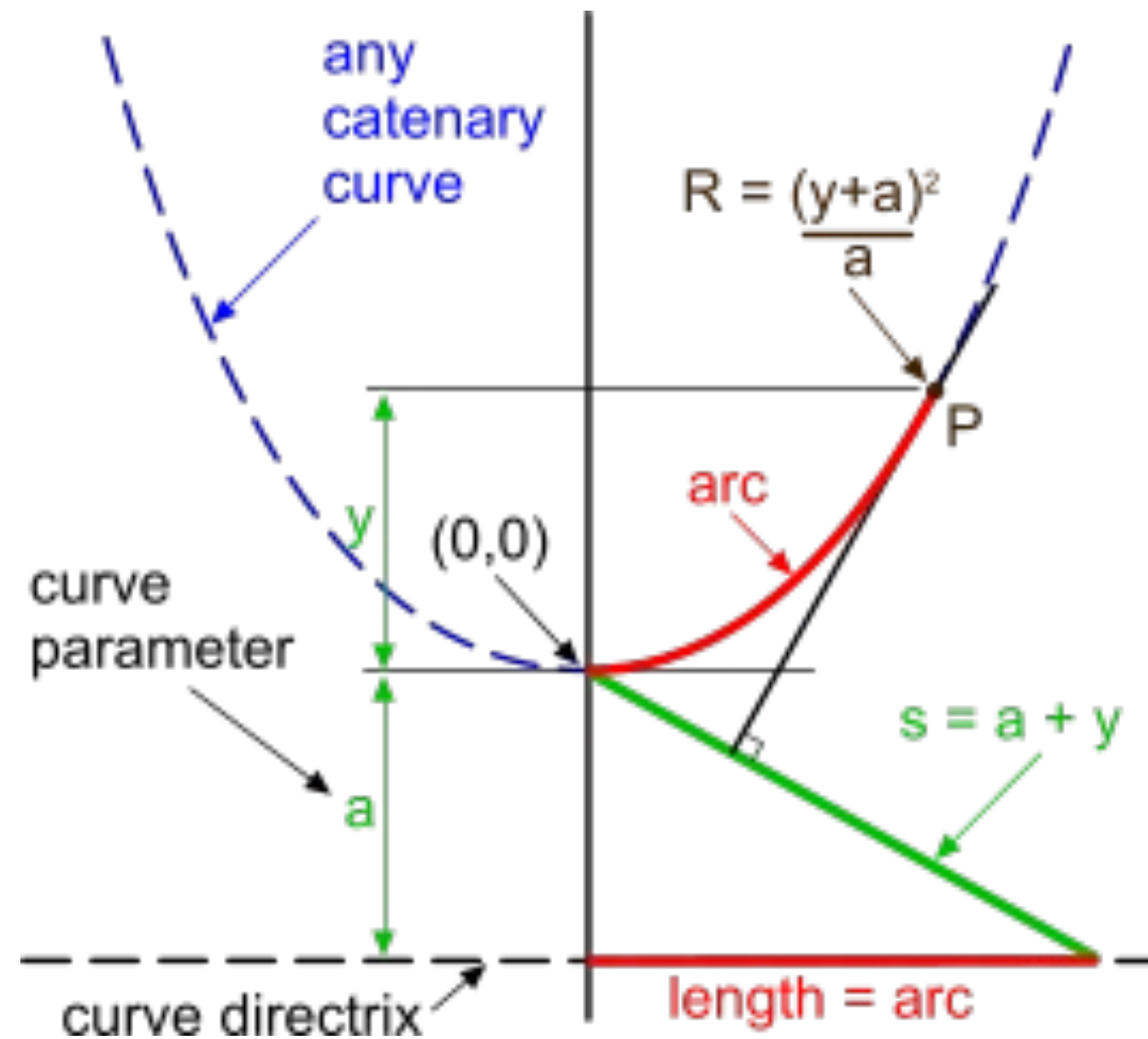
Likely failure points of rigging systems



Working with engineers to better understand loads, vectors, limitations, etc.



Real Science



(DON'T
MATH
AT ME)

Rigging Line Failure?



Failure Points

WHERE?

Likely failure points of rigging systems



Where is the weak point?

Is the Rope/wire interface the weak point?



Consider

Bend Ratio
Bend Radius
D/D



Photographs courtesy of Danae
Jackson Redwing Rigging Solutions



NOPE!

The knot is still the weakest point.

Photograph courtesy of Danae Jackson
Redwing Rigging Solutions

Training



**Checklist-
Completed
Before Starting
The Job**

Training



Knot Proficiency Verification?

Training



**Rigging Kit
Training**

Training



**Rigging
Equipment
Proficiency
Documentation**

- **GRCS**
- **Hobbs**

Training



**Trees on Wire
Proficiency
Assessment
Training**

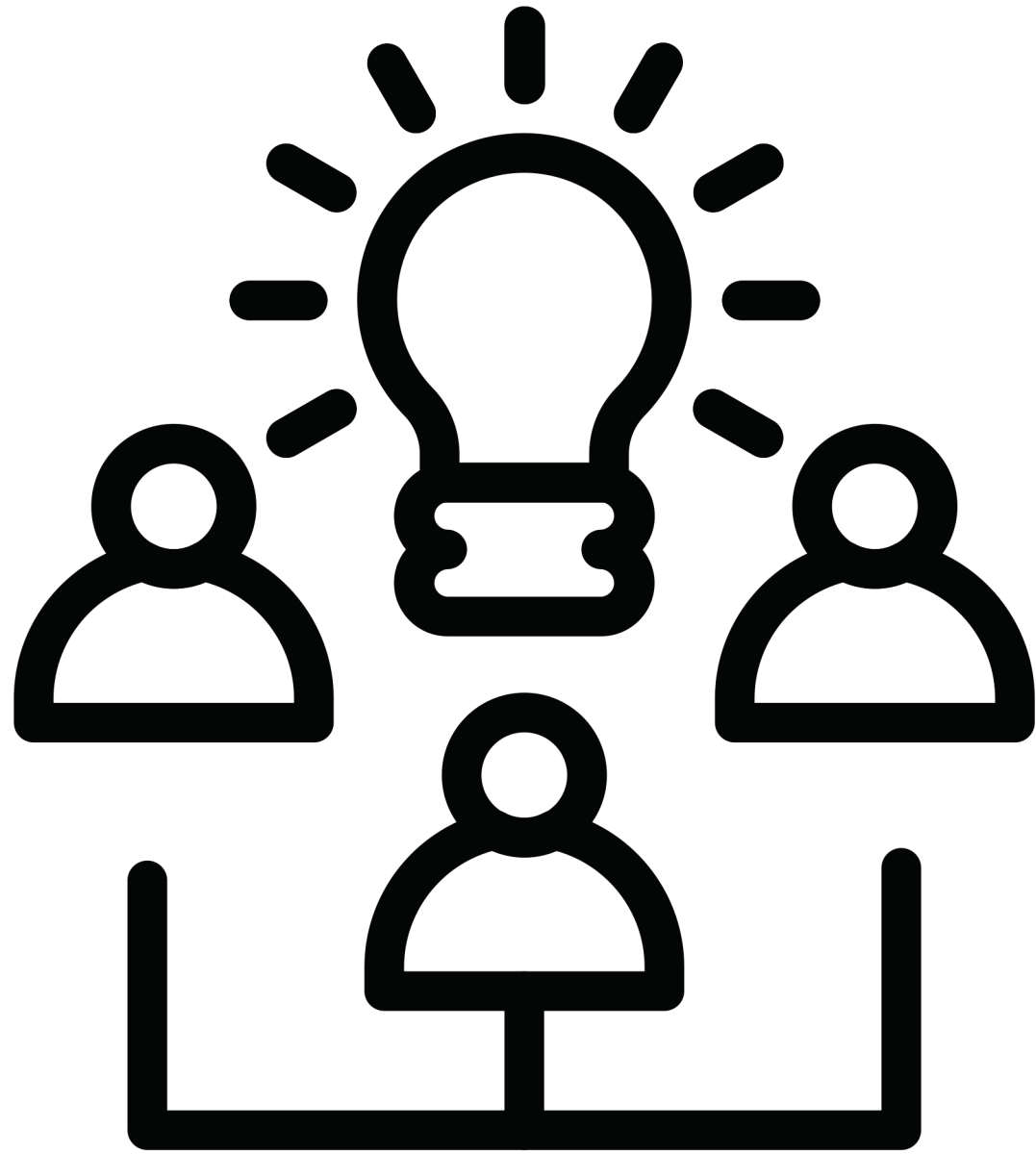
Training



Training



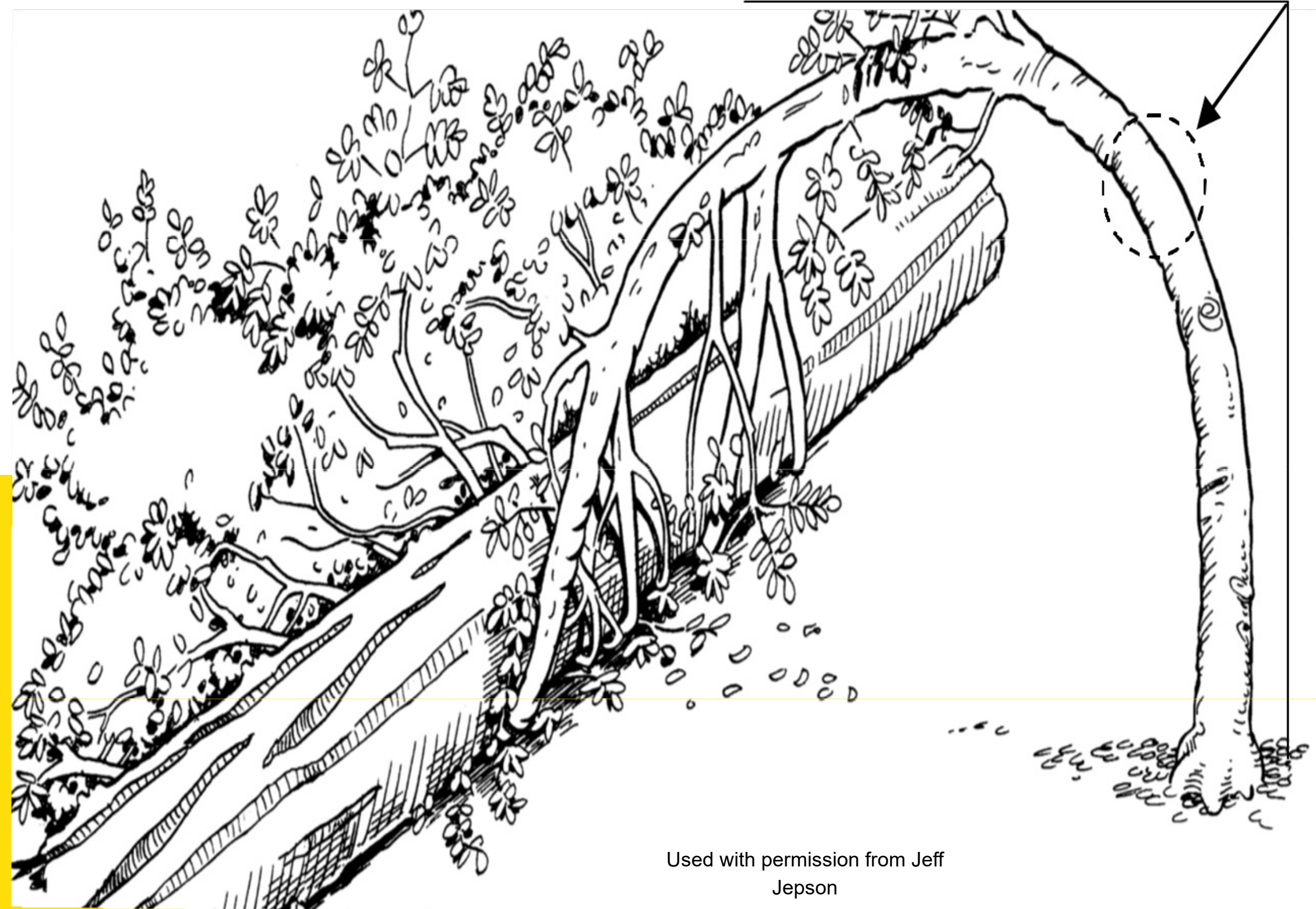
Putting it all together.



- ✓ **Weight of tree**
- ✓ **Load/capacity of poles and wires**
- ✓ **Displacement/return**
- ✓ **How to secure lines**
- ✓ **Controlled release of lines**
- ✓ **Cutting trees/limbs under tension**

Springpoles/ Trees Under Tension

Maximum point of tension



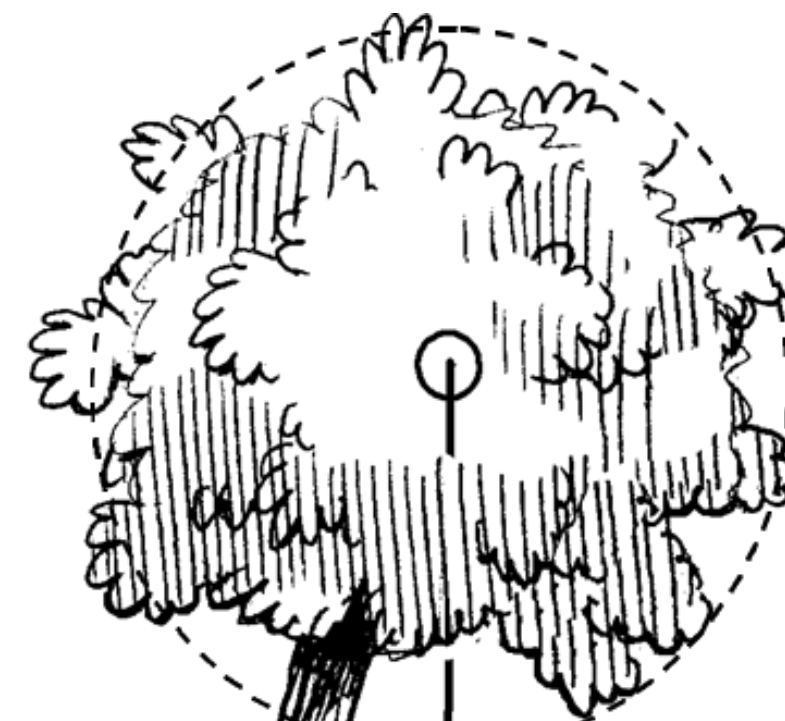
Used with permission from Jeff
Jepson

Estimating Displacement

STEP 2
Take 2nd sighting
90° from the
starting point



90°



Amount of
side lean

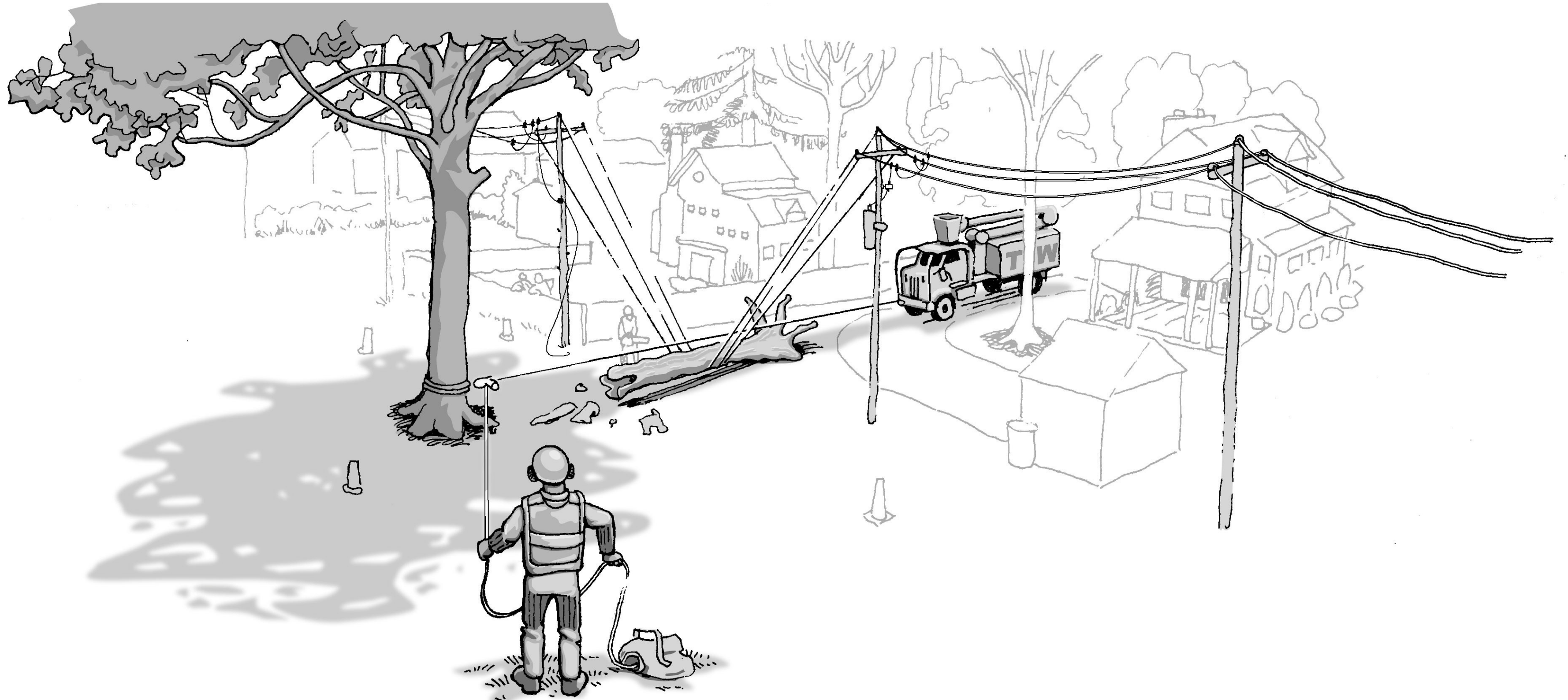
Amount of
forward lean

STEP 3
Tree's natural lean
(line drawn between
the location of the
1st & 2nd sightings)

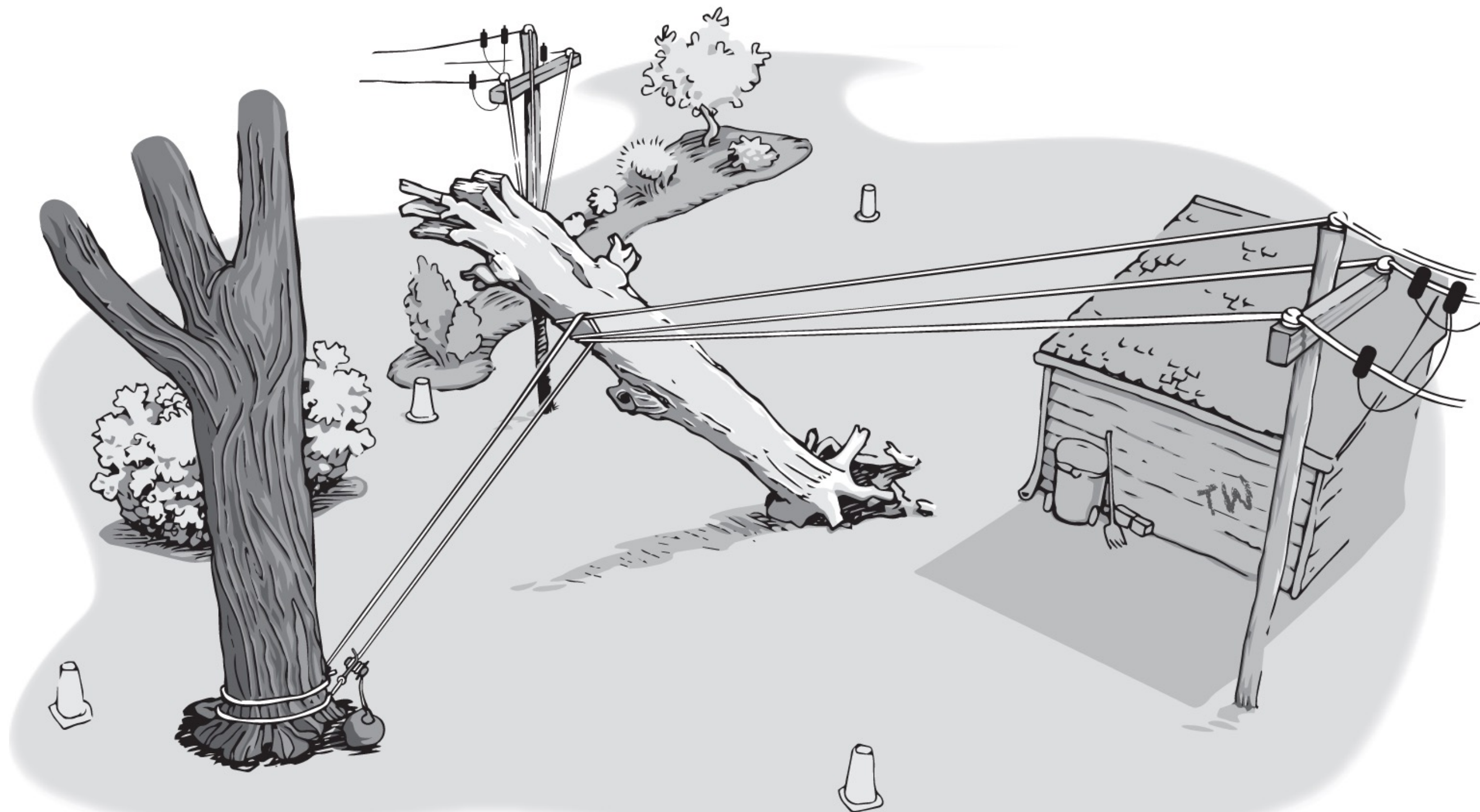
STEP 1

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Best Practices



Best Practices



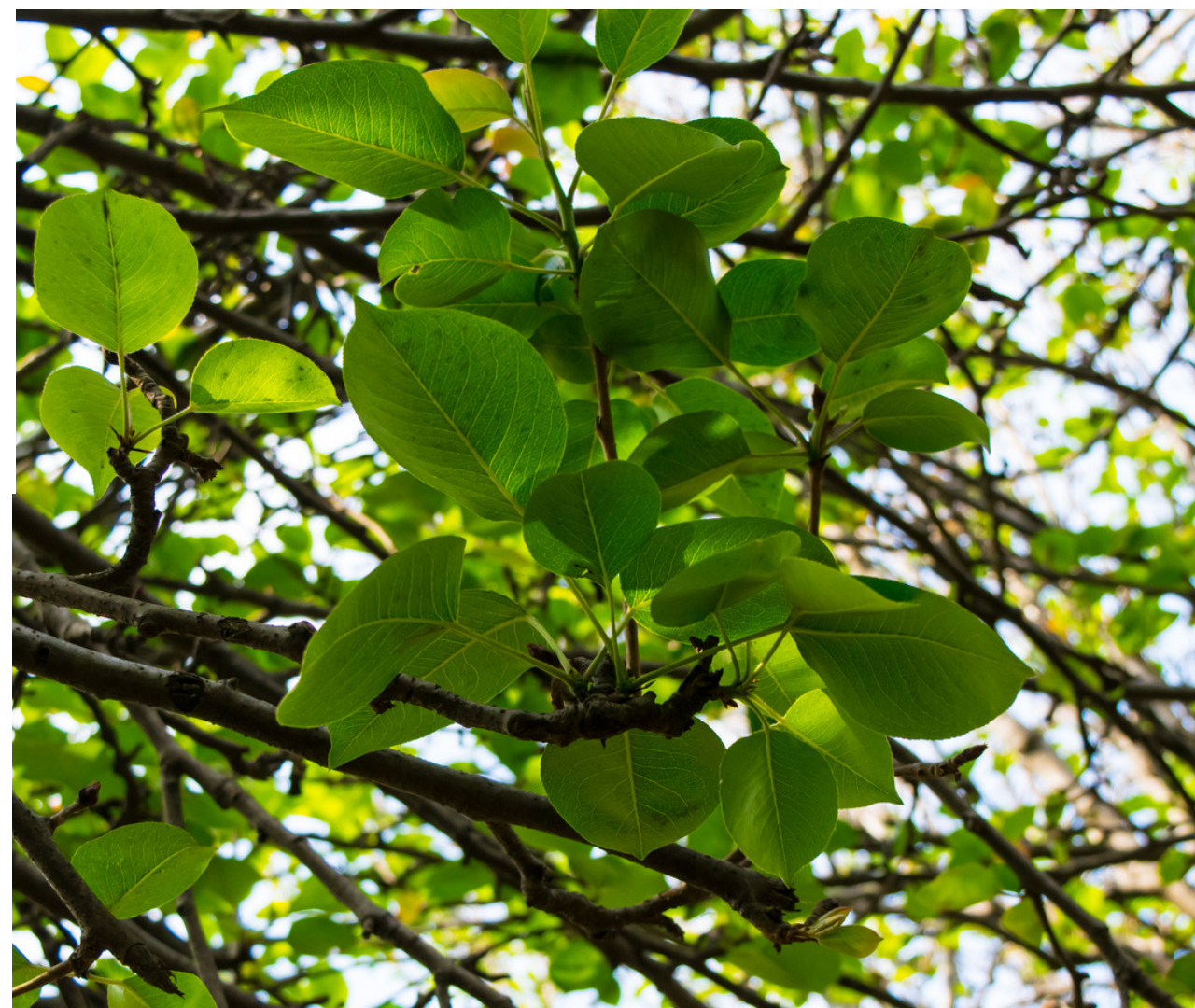


Future Best Practices

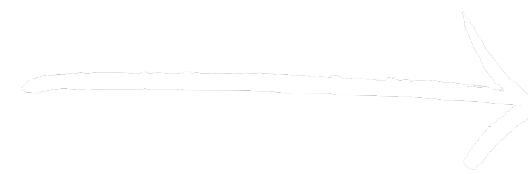
- **ULCSP**
- **Redwing Rigging Solutions Prototype**



Redwing Rigging Solutions Prototype



THANK YOU!



Let's Connect!

TOWNSEND





Motor Carrier Safety;

David Garber; Ohio State Highway Patrol



2024 UAA Ohio Safety Summit

Best Practices Learned



Mechanized Equipment:

Ken Venzke, Wright Tree Service



- Communication is critical
 - Implementation of heads sets uniformly on the ROW's
 - High quality
 - Challenges with communication devices:
 - Too expensive
 - Company won't buy
 - Bluetooth vs radio
 - Bluetooth could be a level of distraction vs radio
- Spotters
 - Lack of them
 - Lack of experience
 - Training
 - Lack of hands on training and formalized training
 - Need to create better/formal training
 - If someone knows what to do, they are confident in the ability and may stop something bad from happening
 - Have better engagement to encourage to perform at a higher level with their communication
 - What is your WHY... what is the value to you on the site
- Pre-planning
 - Importance of having it
 - Making sure it is done and communicated out



- Training
 - Using manufacturing training
 - Having hands on training of all equipment
- Flying debris
 - 300 feet distance
 - What is 300 ft
 - Training for it
 - Keeping public safe as well as yourself
- Fire prevention
 - Having proper fire prevention tools & fire extinguishers
 - Ensuring they are serviced and checked regularly
- Public safety
 - Mowing up to a road vs 300 ft away
 - Having a plan to protect the public



Storm Response: George Emery; FirstEnergy



What is working

- Storm calls
 - Enhanced mind set / “Hero mentality” because engagement is high
 - More focused
- Having a storm kit
 - Storm response job box with needed items that are likely to be forgotten
- Heat App / Weather app
 - NIOSH Heat Index App
- Hydration Monitor
 - Someone who monitors the crew for hydration on a job site

Risks:

- Verifying grounds
 - Don’t be peer pressured into doing a job without having it
 - Have a voice and advocate your own safety
- Paying attention to the debrief
 - Ask questions
 - Stay focused
- Rest time
 - Lack of sleep
 - Are you “Fit for Duty”
 - Create on call list
- Night Flagging
 - Night flagging is almost never done
 - Talk to local police to close the road
 - » Or do it during the day only



- Storm response training
 - New equipment or doing things not trained for (like roping)
- Unpreparedness
 - Rushing to a job site
 - Speeding or erratic driving
 - No pre-trip checks
 - Maybe have a storm response job box
- **Storm Response**
 - You are rushing to job site
 - Speeding, being forgetful



Flagging Operations for State Routes:

Chris Hoffman, FirstEnergy



Training is variable:

- Newest employees are the flaggers it seems across the board
 - Least experienced
- Hands on training is key
 - Wide variety of styles of training industry wide
- Some states require flagging certifications
 - Each state has different standards and requirements

Traffic control/Flagging

- Not in control of the environment or people around us
 - Every road is set up different
- High exposure areas should be 3rd party contractors that specialize in traffic control
 - Would benefit safety and productivity
 - May decrease the high level of risk at set up & break down
 - Have better equipment and tools

Job Briefings

- It is part of the kick off but do it NOT on the site
 - Know what you are facing BEFORE you arrive
- Draw out the traffic control plan and include it in job brief prior to the site



What can we do better?

- Communication
 - Create a link of all 3 parts of a work zone
 - Ability to have flaggers to talk
 - Work zone if something has changed
- Technology
 - Apps
 - Mobile stop light
 - Better lighting at sites
 - Like a green/white hazard light
 - Radios for flaggers
 - Flagger Joe set up maybe (<https://flaggerjoe.com/>)
- Draw out the traffic control plan and include it in job brief prior to the site



DOT : Cody Doan; Townsend Tree





Pre-Trip

- How thorough is it
- The reason for it – what is your WHY
- Look at the PRESENTATION of the vehicle
 - This leads to PREVENTION
- Hands free required
 - The safety factor first but major fine as well
- Benefits of dash camera
 - Accountability of driver
 - Aids in accident situations (legal aspects)
- Record Retention
 - DVIR's (Driver Vehicle Inspection Report)
 - Document pouch with all your info
 - It is ready to be presented
- Companies are graded on a score but under it is the driver
 - A cumulative score goes to the company
 - A driver gets the citation
- **Post Trip**
 - **Repeat all of the above and let leadership know if it needs to be fixed!**

Take it Home Mentality

- What is your why
- Share it with everyone / Don't just keep it to yourself

Consequences to not doing the above.....

- Companies are graded on a score but under it is the driver
 - A cumulative score goes to the company
 - A driver gets the citation



Working Aloft:

Brian Christensen, Wright Tree Service



Risks & Hazards of....

Best Practices

Falls:

- Have easy referenceable education
- There is a huge shortcoming in understanding how trees work / why do they bend and break
- Tree condition
- Overall understanding of factors and forces
 - Swing angles
 - Bending moment / load direction
- Doing spar work
 - Method of tie in & being compliant
 - Commit to training and using it right
- Aerial lift
 - Setting correctly
 - Inspection before use

• Struck by

- Communication
 - Standardize methodology
 - Radio system / increase talking back and forth
- Many companies require verbal communication
 - Maybe hand signals or non-verbal is a way to go
- Drop Zone
 - It is for the worker
 - Designate a spotter
 - No two jobs is the same so
 - Be adaptive to your methodology



Best Practices Continued....

- **Work Position**

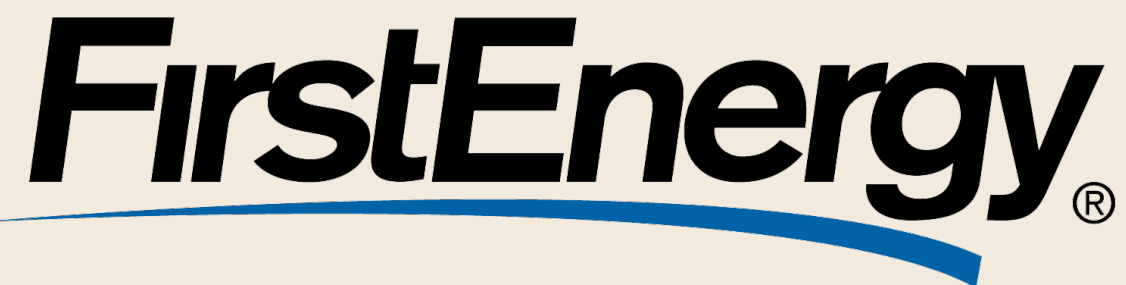
- This relates to EVERYTHING
 - Position good = WIN
 - Position bad = LOOSE
- Tie in before you begin your climb so you are set from the start
 - Have exit strategy if you need to abort you can descend all the way to the ground
 - Have an escape route
- Minimum approach
 - Getting you away from “how close can I get”
 - Change mentality to “ how far away can I remain”
- Ergonomics
 - Where to stow your saw/ tools
 - Twist/bending

- **Electrical Hazard**

- Minimum approach again is crucial
 - Getting you away from “how close can I get”
 - Change mentality to “ how far away can I remain”
- Make sure you are “above” your work
 - MEANING – plan your work so you are not getting caught in a potential issue or hazard
- MAD
 - Knowing grounding policy
 - Dedicated training
 - Know safe operating conditions



Thank you again to our sponsors and co-host!





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