While no tree is absolutely safe, those who work in, under and around them can learn to identify those trees that pose unnecessary risk. A tree is a high risk or potentially high risk if three main things occur:

1. **There is a defect in the tree or a part of the tree that is large enough to cause harm or damage**
2. **High likelihood of the failure occurring**
3. **There is a target that will be affected by the failure**

Let’s look at each of these to get a better understanding of how to identify them.

### 1. Tree defects

We should always have a systematic process for analyzing trees to identify defects. The process should start from the outside in, working through a visual inspection of the entire tree. Keep in mind that there may be hazards to you as you perform this assessment (electrical hazards from downed wires, slip/trip/fall hazards on the site, irritating plants, stinging insects, violent persons, dogs, etc.).

Key things to look for to indicate potential defects that may cause the tree or part of the tree to fail include, but are not limited to:

- Indications of changes to the site affecting major roots (construction, excessive water, fire)
- Excessive lean or significantly unbalanced canopy
- Heaving or cracking of soil in the root plate area
- Evidence of fungal fruiting bodies at or near the base of the tree or trunk
- Cracks, major defects or decay in the trunk (includes fire, insect, and lightning damage)

### 2. Likelihood of the failure to occur

In addition to defects above, there has to be something that causes the failure. There are external forces that cause or increase the likelihood of the failure. These include:

- Wind
- Gravity
- Snow
- Ice
- Rain
- Foliage in growing season
- Impacts of working on or in the tree:
  - Weight of the climber

(Above) If this tree lives, it will sprout back and have weak attachments predisposing it to failure.

This dead tree has visible signs of prior damage. Also, the roots are covered with concrete and can not be evaluated.

- Loads due to rigging, impact or shock loading greatly increase the chance of failure
- Location of tie-in or rigging points can impact failure potential

(Continued on back)
Risk of Hazardous Trees

3. Target

Targets can be anything that can be injured or damaged. Targets include people, pets, vehicles, and places where people are likely to be as well as structures. Sidewalks, streets, playgrounds, or other areas where people are likely to be impacted by a failing tree or part would all be considered targets.

One key aspect of human targets that has often been overlooked is that the person working in or on the tree is a potential target as well. The most extreme case is the tree, or part of the tree that the worker is tied into fails, causing them to fall. This includes workers using aerial lifts as well as those working under or near them. Recently, the felling of whole trees has become the number one killer in the tree care industry. Additionally, parts of the tree can fall on workers in the area (branches, wood, etc.)

Houses, garages, office buildings or another structure that would be damaged by the failure would all be potential targets.

Electrical lines and hardware are also potential targets. Damage to the electrical supply system and resultant wildfire damage are major concerns as targets.

Once a tree has been identified as a hazard specifically as defined by your employer or host contractor, the risks must be mitigated. The nature of the mitigation depends on the nature of the risk and your company-specific procedures. A few ways to reduce the risk include:

- Moving or removing the target
  - Move any target that can be moved
  - Use another means to access the tree besides climbing
- Reduce things that will cause the tree to fail
  - Lower impact rigging
  - Prune defective, dead or damaged branches
- Remove the tree
- Avoid practices that predispose trees or their parts to failure
  - Use proper target pruning
  - Avoid mechanical damage to the trunk and roots
  - Have energized lines DIG’d (De-energized, Isolated, tested and Grounded) before starting work if the work cannot be done safely based on your qualifications