

TREE WELL & DEEP SNOW ACCIDENT PREVENTION

The most important prevention step is to remain on groomed runs (see Groomed and Ungroomed Trails section), resisting the urge to ski or snowboard through the trees during deep powder conditions, no matter how inviting the untracked powder looks. If you choose to ski or snowboard in the ungroomed, deep snow areas with trees, remember:

#1) A PARTNER:

It is critical to ski or ride with a partner who remains in visual contact at all times.

In many cases, some of the deaths which have occurred due to tree well incidents **may have been avoided had:**

- a) the person been with a partner
- b) the partner saw the person fall and
- c) the partner was close enough to assist digging the victim out in a timely manner.

It does **NO GOOD** for your safety if you are under the snow and your partner is waiting for you at the bottom of the lift. If you have any question about what a “timely manner” is to assist someone in a tree well, hold your breath now as you are reading this and the amount of time until you need air is approximately how much time your partner has to help get you out of danger. Other factors such as creating an air pocket or the nature of how you fall into the well may extend this critical timeframe.

VISUAL CONTACT means stopping and watching your partner descend at all times, then proceeding downhill while he or she watches you at all times. IF YOU LOSE VISUAL SIGHT OF YOUR PARTNER, YOU COULD LOSE YOUR FRIEND. See photos # 1-3.

#2) Carry the same personal rescue gear as backcountry skiers or snowboarders: a transceiver, shovel, probe, and whistle.

#3) If you are a skier, remove your pole straps before heading down a powder slope. Trapped skiers have difficulty removing the pole straps, which can hamper efforts to escape or clear an air space to breathe.

WHAT IF I GO DOWN?

- 1) If you are sliding toward a tree well or a deep snow bank, do everything you can to avoid going down: **grab branches, hug the tree, or anything to stay above the surface.**
- 2) If you go down, **resist the urge to struggle violently.** The more you struggle, the more snow will fall into the well from the branches and area around the well and compact around you.
- 3) Instead of panicking, try first to **make a breathing space around your face. Then move your body carefully in a rocking manner** to hollow out the snow and give you space and air.



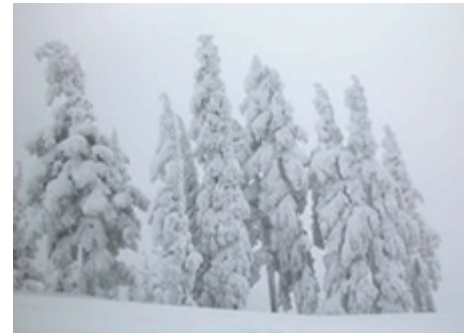
Hopefully, your partner will have seen what happened and will come to your rescue within minutes. If not, experts advise staying calm while waiting for assistance. **Survival chances are improved if you maintain your air space.** Over time, heat generated by your body, combined with your rocking motions, will compact the snow, and you may be able to work your way out.

TREES & TREE WELLS

Trees are an important and integral part of the natural Cascade mountain environment and exist in Northwest ski areas, predominantly in the ungroomed areas. However the incidences of skiers and snowboarders falling into snow wells created by trees has increased in recent years. Prevention of falling into a tree well is all-important because the odds of surviving deep snow immersion are low. For your safety, you should assume all trees have a hazardous tree well.

In an experiment in which 10 volunteers were temporarily placed in a simulated tree well, none could rescue themselves.

Experts who chart skiing injuries have documented a significant risk: suffocation after falling, often headfirst, into deep snow depressions around trees (tree wells) or even on open ground. Most tree well incidents have occurred at ski resorts in the western United States and Canada, though the same risk would be present wherever deep powder conditions are found.



Fortunately, the risk of falling into a tree well is completely avoidable. Unlike avalanches, which are difficult to predict and the danger is often not visible, tree wells exist in deep snow areas and only around trees – in simple terms, a tree well is a hole in the deep snow, which is clearly marked by a tree.

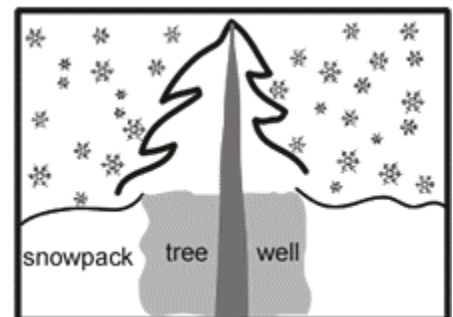
You can avoid falling into a tree well by avoiding skiing or snowboarding near trees in deep snow areas.

WHAT IS A TREE WELL

- Hazardous tree wells are generally found in **ungroomed areas**.

- The **low-hanging branches of trees** may create a sheltered area around the base of the tree, where a well of loose snow with air pockets can form.

- It is best to **assume that all trees in deep snow have some depth of tree well.** Usually there is no easy way to identify if a particular tree has a dangerous tree well by sight, because the branches often block visibility of what hole may exist.



• **Particularly hazardous trees appear to actually be the smaller trees or trees where the branches are touching the snow.** The branches help form a canopy over the hole, inhibiting snow from filling in the hole around the trunk of the tree –thus the snowpack increases outside the branches, creating a deeper hole under the branches.

• **The risks are greatest during and after major snowstorms.** The amount of snow piled up on the outside of the branches can also add to the hazard, because this snow is knocked off of the branches and down into the hole when hit, this could possibly contribute to a burial.

• **Tree wells tend to form on the downhill sides of trees,** because snow on the uphill side tends to creep downward and become compacted against the tree. Once again, branches touching the snow might effect this.

• **Tree wells are also more common in areas sheltered from the wind,** because strong winds break up snow crystals, increase snow density and blow snow around to help fill in the hole/well.

GROOMED & UNGROOMED AREAS WITHIN THE SKI AREA

Groomed Areas & Trails

1. Groomed trails and areas within the ski area are locations where large snow grooming machines which weigh thousands of pounds have driven over the snow.

The primary benefits of the grooming process include but are not limited to:

- Compression of deep snow into a solid surface.
- Grooming helps fill in holes
- Refines the snow surface for improved edging and turning.

2. Trees are less frequent in the main traffic flow of groomed main runs. The tree wells of trees that may exist in groomed runs maybe partially filled in by the grooming process.





ungroomed area

groomed area

Ungroomed Areas

-Ungroomed areas are areas within the ski area which HAVE NOT been driven over by a snow cat grooming machine.

- Ungroomed areas require a heightened awareness of the mountain environment and possess additional risks as well as the inherent risks that are associated with skiing and snowboarding.

- In addition to other unpredictable natural hazards, deeper snow, variable snow conditions, additional marked or unmarked hazards, and trees and tree wells exist in ungroomed areas.

-Ungroomed areas include the areas bordering the groomed beginner, intermediate, and expert trails inside the ski area.

-If you choose to go into an ungroomed area, it is important that you use heightened awareness and take necessary precautionary steps associated with tree well and deep snow accident prevention.

-Designated runs may not be groomed. Areas which are not designated runs will not be groomed.