Safety around trees

Assessing trees:

- Tree health
  - Is the tree alive or dead?
  - Are there dead branches or other visible signs of ill-health – dead leaves or twigs at the end of branches?
  - Are there visible signs of rot or fungal attack on the trunk?
  - Are there dead or sagging branches?
  - Are there signs of ageing?
  - Are there signs of coppicing or epicormic regrowth?[1]
- Tree structure
  - Is the tree balanced or leaning? Is any lean due to damage?
  - Assess the size and relative weight.
  - Are there structural weaknesses such as co-dominant forks with included bark[2]?
  - Are there visible signs of damage to roots, trunk, or branches, such as wounds, cracks, or bulges?
  - Does any damage observed compromise structure (for example root damage on one side, or loss of branches on one side)?
  - Has the soil been softened by rain?
  - Is the soil cracked or bulging?
  - Are there any loose branches suspended in the canopy?

Assessing location

- What areas are at risk from falling branches?
- What areas are at risk from the whole tree falling? (Distance estimation)
- Is the tree particularly susceptible to wind loading from any particular direction?
- Does the tree have a large "sail" area (wind load)?
- Have tracks, clearing, or other works changed the way the tree has grown, or altered wind loads?

Weather

- What is the forecast
  - Rain softening the ground
  - Snow or ice loading
  - Wind loading
  - Rain loadings on canopy
  - Wind direction
- What previous weather events might have affected trees
  - Long dry spells
  - Sodden ground

[1] Branches that have grown following damage or stress might be more weakly attached than branches that form part of a tree's original structure *Commissioner Hodgson. (2005, 15 April). "Gormley v City of Unley SAEDC [2005] 24." from http://www.courts.sa.gov.au/courts/environment/judgments/2005_1-6/gormley_v_unley.html.*

[2] Alpine Ash trees, for example, normally grow with a single trunk. When they fork to form two trunks, there can be a potential failure point at the apex of the fork, especially if both trunks are nearly vertical and have grown over bark at the apex – the "in grown" bark can be a source of decay.

Source:

Safety around trees

Table 5. A suggested protocol for assessing tree hazards around campsites (sources: Johnson 1981; USDA Forest Service and Minnesota Department of Natural Resources 1996; Lonsdale 2000; Fakes 2005; Serken 2005).

Local, experiential knowledge of an area that might help reduce the risk of tree related incidents, includes not just knowledge needed to assess the hazards around a campsite, but also knowledge of the surrounding area. (Some of this knowledge can be 'corporate' knowledge, communicated to leaders as needed, but personal local experience seems important[3]). There might be alternative sites or locations, where the trees are spaced differently, are younger, or of different species. There might be large clearings beyond the reach of the tallest trees, or areas of woodland with many clearings. There might be sites where logs on the ground, rocks, a tree leaning away from the tent, or road cuttings offer a measure of physical protection. There might be thickets in the lee of which wind will not be a problem. There might be local circumstances, such as the build up of ice (rime) on leaves leading to widespread failures. There might be an escape route for circumstances where forecast wind speeds exceed the threshold decided by the leader, although the latter might be less straightforward than, say, river level thresholds applied to river trips, because escape might expose a group to risks of trees falling across a track or road. Knowledge of sheltered locations, including stands of trees likely to withstand high winds (for example snow gums can be very wind tolerant), or an area clear of trees (such as a logging coupe) might form part of the plan.

In moving a group to a safer location in hazardous weather conditions, leaders should consider spreading the group out to ensure that any incident will only claim a single victim.

(Source: Brookes 2007)

Brookes, A. (2007). "Preventing death and serious injury from falling trees and branches." Australian Journal of Outdoor Education **11**(2): 50 - 59.

Commissioner Hodgson. (2005, 15 April). "Gormley v City of Unley SAEDC [2005] 24." from http://www.courts.sa.gov.au/courts/environment/judgments/2005_1-6/gormley_v_unley.html.

Fakes, J. (2005). Review of tree hazard appraisal reports. Hyde Park - North and South. Sydney, City of Sydney.

Johnson, D. W. (1981). Tree hazards: recognition and reducation in recreation sites. Lakewood, Colorado, US Dept. Agriculture Forest Service.

Lonsdale, D. (2000). Hazards from trees. A general guide. Edinburgh, Forestry Commission.

Serken, P. (2005). A guide for tree-stability analysis. www.sterken.be, Peter Sterken.

USDA Forest Service and Minnesota Department of Natural Resources (1996). How to recognise hazardous defects in trees, USDA Forest Service.

[3] In my experience it is useful to introduce areas new to an area by showing them examples of what to look for, but they should then spend time making their own observations.