Tree risk assessment: an international overview

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International standards?

- ISO 31000 & 31010 Risk Mgmt & Assessment
- ANSI A300 Standard (2010)
- ÖNORM L1122 (Kontrolle/Pflege, 2003/11)
- UK National Tree Safety Group report (in draft)
- FLL Baumkontrolle:
  - standard inspection (2006)
  - eingehende Untersuchung (2013)
- ISA BMP for Risk Assessment - 2011
- ISA Tree Risk Qualification – 2013
- …

Inspection / Examination

- Most standards distinguish between different levels of inspection, ranging from
  - Survey / drive-by-assessment / Level 1 / …

  up to
  - Detailed examination (using technical equipment)
- Most standards recommend detailed examination for ‘important trees’ if visual inspection cannot provide a clear result.
- Yet no standard clearly describes reliable safety thresholds, technical options and limitations.
- In Europe, natural protection regulations now strongly recommend old trees to be maintained as long as possible for saving the habitats (of insects and birds …).

German Situation

- VTA (t/R>1/3, H/D>50, L/D>40) ☺ ☹ SIA ☺ ☹ … ☺ ☹ …
- Some/few/many municipalities/administrations go one of these ways:
  - tree to be felled if visual inspection cannot ensure safety (because technical inspection too expensive and 'dangerous')
  - every road-side tree has to be drilled regularly (because roots could be decayed).
  - every tree has to be drilled for written proof of inspection (even intact and young trees).
- Some municipalities/administrations:
  - do not allow trees to be drilled because a few "scientists" and "experts" said "drilling kills trees" - without really proving this statement with real data
  - do not allow pull-tests because a few "scientists" said "pull-test do not work" - without really proving this statement with real data
  - only allow drilling or sonic tomography or pull-test and forbid other techniques
  - recommend a combination of methods, such as drilling, then sonic tomography, then pulling - depending on the individual task

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Common Standard?

- **No!**

Common Agreement on scientific basics?

- **No!**

Common Understanding and knowledge of possibilities and limitations of diagnostic equipment?

- **No!**

(>90% of reports checked by us were wrong in terms of application of diagnostic devices and data interpretation!)

Basic reason for this chaos?

- Most arborists and green experts do not yet have enough education and knowledge about
  - scientific basics of proper technical tree inspection in terms of
    - wood anatomy and pathology
    - biomechanics and physics
  - possibilities and limitations of diagnostic devices and methodological procedures in terms of
    - application at the tree
    - interpretation and evaluation of the obtained results
- => They cannot yet build their own qualified opinion about detailed tree examination and use of diagnostic devices and they mostly cannot identify diagnostic myths published since decades by so-called “scientists”/”experts” following (often hidden) economic interests and connections instead of neutral and unbiased science.

Driving factor

- Germany again a successful export-champion
  - providing pretended theoretical and technical ‘solutions’ by using methods and/or diagnostic equipment, strongly promoted by allegedly neutral scientific institutions
  - with many extreme statements about how to assess trees (not really based on neutral science but following more or less hidden economic interests and connections)
- The fact that a scientist or expert works at/for a public (German) institute/University was and is seen (internationally) as an indication of neutral science and therefore most arborists took presentations and publications as real and correct – because they did/do not know about the (mostly hidden) economic interests behind these publications/presentations.
- => many diagnostic/technical myths spread and established.

Obvious signs for myths in technical tree inspection

- ‘Scientists’ / ‘Experts’ of (public) research/education institutions
  - exclusively use/describe diagnostic products/methods (of one company)
  - explicitly/exclusively recommend specific products (of one company)
- Data and results are not confirmed by really neutral and independent other experts/scientists and/or institutions
- Claims are published/presented without real and verifiable proof
- No publications in neutral peer-review journals
- Established standards and requirements (DIN 1319 / ANSI / ISO) are ignored

⇒ Such kind of publication/presentation most likely indicates the opposite of neutral science&education but instead stands for concealed commercial marketing following more or less hidden economic interests.

⇒ Therefore, such publications and presentations should be questioned in detail and then stripped off any pseudo-scientific curtain.

Solution?

- No dogmatism but open discussions.
- Neutral research and honest publications.
- Disclosure of economic interests and connections of ‘neutral’ researchers/teachers.
- Neutral education based on real science & data.
- Proof of every hypothesis on (preferably mature) urban trees by, for example, loading until failure and measuring with as many sensors as possible (like German Fachverband does since 2010-)
- Certifications & Qualifications that preferably have to be renewed and updated regularly, such as ISA-TRAQ
- But, be aware: TRAQ or equivalent approaches are just the mandatory base and starting point!

> Take TRAQ and go on

- A qualification like TRAQ is the mandatory and required base for qualified tree risk assessments.
- But it is only the starting point of further education
- ISA-TRAQ does not specify
  - how to determine tree dimensions and wood condition
  - how to interpret obtained/measured results
  - how to derive and predict probability of failure
  - thresholds for safety factors
  - required load reduction due to safety factors
- **=> Take TRAQ but don’t stop and go on!**