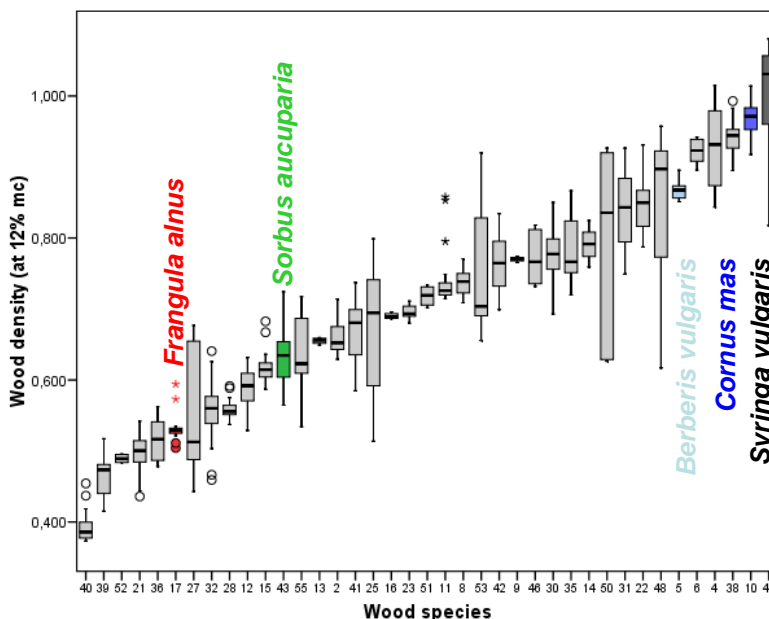


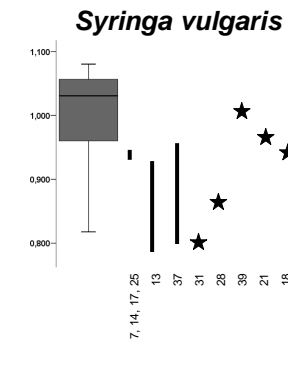
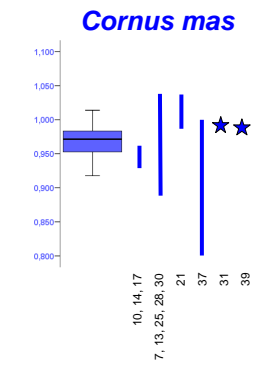
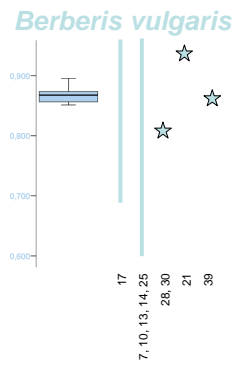
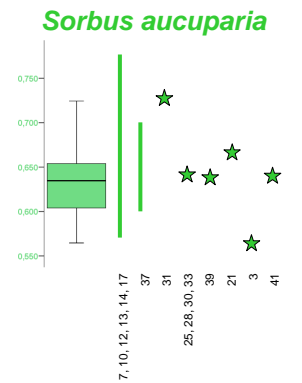
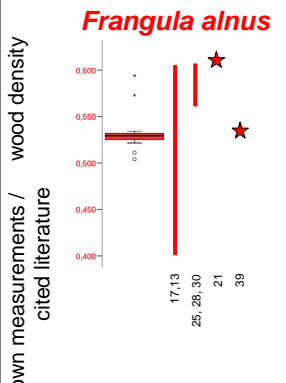
# Rarely used wood species – new results and old literature

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- used species
- 40 *Salix vitellina*
  - 39 *Salix* spp.
  - 52 *Aesculus hippocastanum*
  - 21 *Juniperus* spp.
  - 36 *Rhus typhina*
  - 17 *Frangula alnus*
  - 27 *Platanus hybrida*
  - 32 *Prunus padus*
  - 28 *Populus* spp.
  - 12 *Corylus avellana*
  - 15 *Euonymus europaea*
  - 43 *Sorbus aucuparia*
  - 55 *Hippophae rhamnoides*
  - 13 *Cotinus coggygria*
  - 2 *Ailanthus altissima*
  - 41 *Sambucus nigra*
  - 25 *Malus domestica*
  - 16 *Euonymus verrucosa*
  - 23 *Ligustrum vulgare*
  - 51 *Viburnum opulus*
  - 11 *Cornus sanguinea*
  - 8 *Carpinus betulus*
  - 53 *Prunus spinosa*
  - 42 *Sorbus aria*
  - 9 *Castanea sativa*
  - 46 *Staphylea pinnata*
  - 30 *Prunus domestica*
  - 35 *Rhamnus cathartica*
  - 14 *Crataegus* spp.
  - 50 *Viburnum lantana*
  - 31 *Prunus mahaleb*
  - 22 *Laburnum anagyroides*
  - 48 *Taxus baccata*
  - 5 *Berberis vulgaris*
  - 6 *Buxus sempervirens*
  - 4 *Amelanchier ovalis*
  - 38 *Rosa canina*
  - 10 *Cornus mas*
  - 47 *Syringa vulgaris*



- used literature
- 1 Hiltl, J.A. 1798
  - 2 Böhmer, G.R. 1799
  - 3 Bechtstein, J.M. 1812
  - 4 Spinner, F.C.L. 1834
  - 5 Dempp, K.W. 1842
  - 6 Hartig, T. 1851
  - 7 Nördlinger, H. 1860
  - 8 Moeller, J. 1883
  - 9 Podany, F.M. 1883
  - 10 Printz, E. 1884
  - 11 Bersch, J. 1893
  - 12 Heß, R. 1895
  - 13 Stübling, K. 1896
  - 14 Hanausek, E. 1897
  - 15 Stoetzer, H. 1903
  - 16 Graef, M. 1905
  - 17 Printz, E. 1908
  - 18 Kraus, P. 1910
  - 19 Laris, E. 1910
  - 20 Schönwiese, H. 1911
  - 21 Janka, G. 1915
  - 22 Hunziker, W. 1916
  - 23 Neger, F.W. 1919
  - 24 Hufnagl, L. 1920
  - 25 Neger, F.W. 1920
  - 26 Thiemis, G. 1921
  - 27 Baumann, R. 1927
  - 28 Gayer, S. 1928
  - 29 Monroy, J.A. 1929
  - 30 Gayer, S. 1939
  - 31 Dopf, K. 1949
  - 32 Schwankl, A. 1951
  - 33 Knuchel, H. 1954
  - 34 Amann, G. 1954
  - 35 König, E. 1956
  - 36 Begemann, H.F. 1963
  - 37 Schafflützel, H. 1974
  - 38 Takahashi, A., Tanaka, C., Shiota, Y. 1983
  - 39 Niklasova, S. 2009
  - 40 Grebe, K. 1861
  - 41 Nördlinger, H. 1890



**Description:**  
light and soft, porous, strong in compression, easy to split, low shrinkage, easy to tool

**Description:**  
strong, bendable but not elastic, hard to split, high hardness and ductility, easy to tool, high shrinkage

**Description:**  
fine grained, very strong and hard (as bones), hard to split, high shrinkage

**Description:**  
heavy, hard, very strong and tough, hard to split, high shrinkage, good to tool

**Description:**  
very heavy, fine grain, very hard (as bones), hard to split, strong, high shrinkage

**Utilization:**  
mainly as gunpowder, sticks, umbrellas, for turners and carpenters

**Utilization:**  
carpentry, turnery, wainwright, machine building: spindles, presses, rolls

**Utilization:**  
small furniture, tubes of pipes, cleats

**Utilization:**  
all things where friction plays an important role: teeth, gears for watches, rolls; shaft of hammer, shuttles, cleats, walking sticks, ladder spoke

**Utilization:**  
just for small goods in turnery and carpentry (artwork), sticks and umbrellas, gears for watches

**Notes:**  
utilization as teeth of rakes – not mentioned in literature

