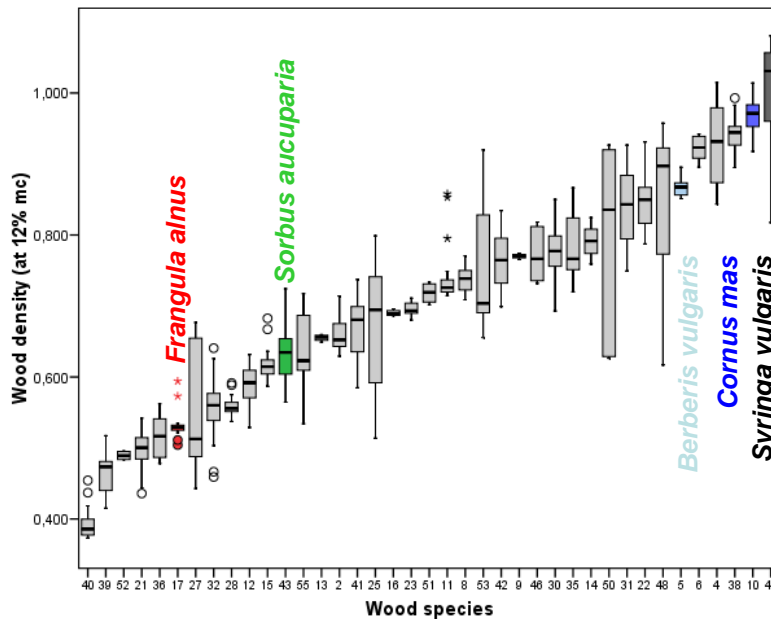


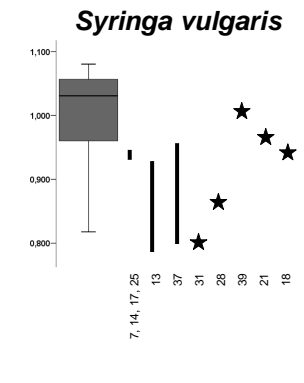
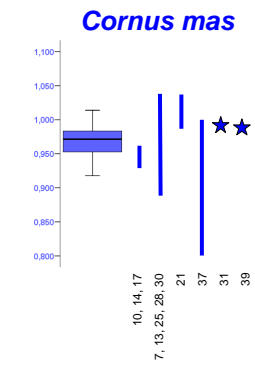
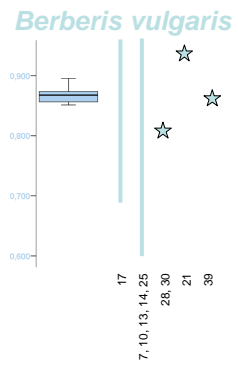
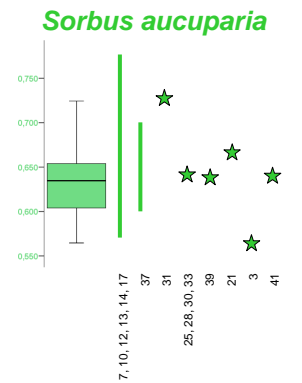
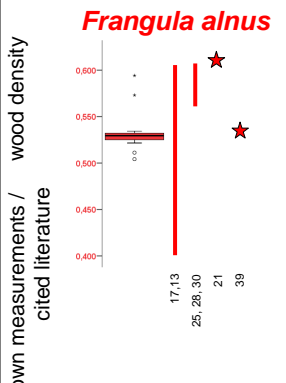
Rarely used wood species – new results and old literature

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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 Krais, 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 Thenius, 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

