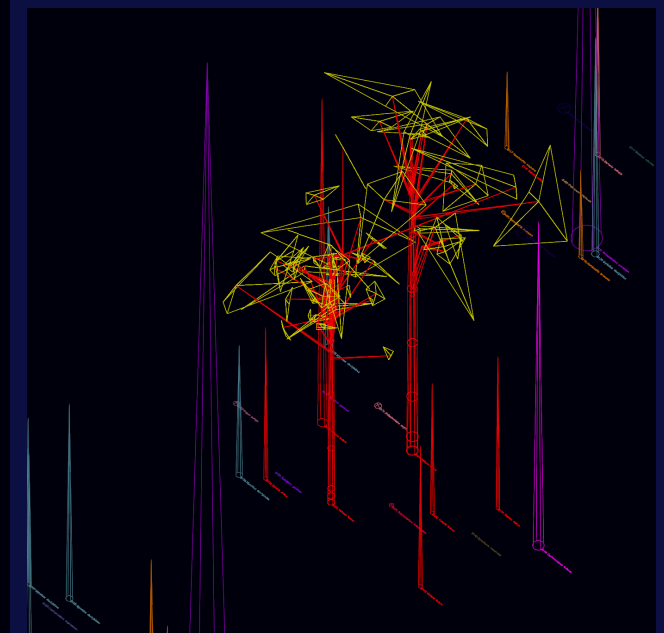
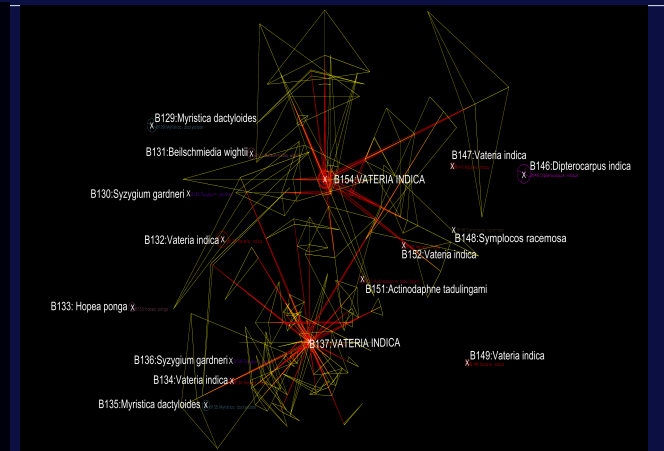
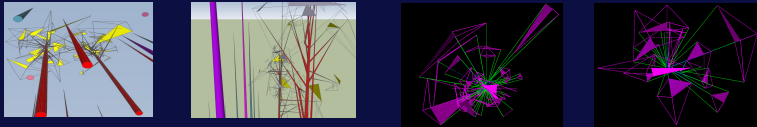


Vateria indica Crown Structure Mapping

for Institute Francais - Pondicherry
 Forest Biomass Estimate Pilot Study, April 2009
 Uppangala Research Site, Karnataka, India
 by YD Bar-Ness (ydbarness@gmail.com)
 Please visit : www.treeoctopus.net
 3-d mapping: www.geog.utas\yoav -> treemap



Tree	B137	B154
SubPlot	Ba11	Ba12
Species	Vateria indica	Vateria indica
Trunk Girth	53 cm	84 cm
Tree Height	22 m	29 m
# Vectors Recorded	50	26
# Trunk Segments	7	6
# Simple (including # systems)	31 (2)	10 (2)
# Complex (# Complex Vectors)	2 (10)	2 (8)
# Terminal Vectors	39	15
Avg Branch Circumference	15.38 cm	36.08 cm
Avg Vector Slope degrees	24	21
Σ Leaf Estimate	1655 lvs	10016 lvs
# Leaves / Branch Circ	107.61 lvs/cm	277.63 lvs/cm
Σ # Leaves / Trunk Girth	31.23 lvs/cm	119.24 lvs/cm
Σ Surface Area m ²	36.77 m ²	64.57 m ²
Σ Volume m ³	1.755 m ³	5.536 m ³
Σ Wood Mass	824.71 kg	2602.02 kg
Σ WoodMass /Trunk Girth	15.56 kg/cm	30.98 kg/cm

Methods: Two safe study trees were climbed. Trunk girths were measured at 5m intervals (red). All trunk-originating branches (red) were represented by 3-d vectors (slope, azimuth, distance) and girths. For every branch originating from the trunk and represented by only one vector (simple), the unmeasured child branchlets and leaves were represented by an airspace zone delineated by vectors offset up/down/left/right (yellow). Additionally, complex branch systems included more detailed data for children branches, but were additionally represented by a "system summary" to make them directly comparable to the simple branches. A preliminary estimate was made of leaf numbers associated with each airspace, which could later be calibrated to leaf mass and volume. Using CAD software, data was plotted with neighbouring trees using location, girth, species, and height data provided by IFP. Summary data was compiled for each tree, including wood biomass [Total vector volume] x [0.47 g/cm³; *V. indica* density:FAO.org]. Future work can contribute to studies of forest CO₂ sequestration aboveground by studying the relationship of different tree species' wood, foliage, fruit/flower, and epiphyte biomass with easily measurable variables such as girth or height.