

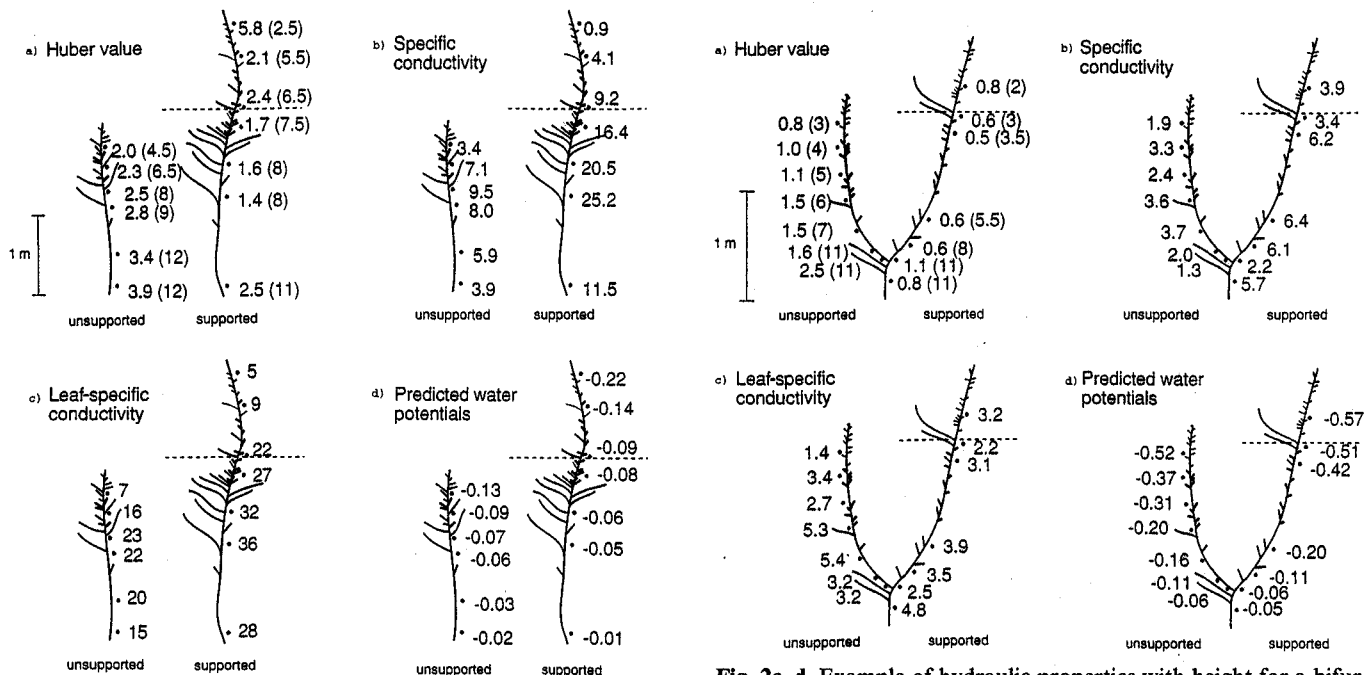
**Table 2.** Huber value ( $10^{-4}$  xylem transverse area/distal leaf area), specific conductivity ( $10^{-3} \text{ m}^2 \text{ s}^{-1} \text{ MPa}^{-1}$ ), and leaf-specific conductivity (LSC,  $10^{-7} \text{ m}^2 \text{ s}^{-1} \text{ MPa}^{-1}$ ) of primary stems of *Toxicodendron diversilobum* as a function of support and light environments in the fence area (two-factor ANOVA, mean  $\pm$  SE). The value

Support	Unsupported		Supported	P
	entire	top	bottom	
(n)	(11)	(8)	(11)	
Huber value	$2.9 \pm 0.3^a$	$1.5 \pm 0.4^b$	$1.0 \pm 0.1^b$	**
specific conductivity	$4.2 \pm 0.7^a$	$4.5 \pm 0.7^a$	$10.9 \pm 1.7^b$	**
LSC	$11.7 \pm 1.6$	$6.1 \pm 1.2$	$10.6 \pm 2.3$	n. s.

Light	high	medium	low	P
	(n)	(14)	(9)	
Huber value	$2.2 \pm 0.4$	$1.8 \pm 0.3$	$1.8 \pm 0.3$	n. s.
specific conductivity	$7.5 \pm 2.0$	$6.4 \pm 1.3$	$6.8 \pm 1.7$	n. s.
LSC	$14.9 \pm 0.3^a$	$9.1 \pm 1.4^b$	$6.8 \pm 1.0^b$	*

\*\*  $P < 0.01$ , \*  $P < 0.05$ , and n. s.  $P > 0.05$ . The same letter following values on a line indicate they do not differ significantly at  $P < 0.05$



**Fig. 1a-d.** Example of hydraulic properties of primary stems with height for two neighboring *Toxicodendron diversilobum* shoots (one unsupported, one supported) in full sun. **a)** Huber value ( $10^{-4}$  xylem transverse area/distal leaf area) and segment age (yr) in parentheses, **b)** specific conductivity ( $10^{-3} \text{ m}^2 \text{ s}^{-1} \text{ MPa}^{-1}$ ), **c)** leaf-specific conductivity ( $10^{-7} \text{ m}^2 \text{ s}^{-1} \text{ MPa}^{-1}$ ), and **d)** predicted stem water potentials (MPa) for  $E = 5 \text{ mmol m}^{-2} \text{ s}^{-1}$ . The dashed line shows where the supported shoot leaves the chain link fence, and separates the shoot's bottom and top

from their initial 0.1 m to 1–3 m in height) and xylem produced during their second year.

**Vessel length distribution.** I measured vessel length distribution for 12 stems (one staked and one unstaked) from six source plants using the latex paint method (Zimmermann and Jeje 1981). A filtered

for an individual shoot (unsupported) or portion of shoot (supported) is the average of all its measured segments. The top of the supported shoot is above where the stem leaves the fence; the bottom is the supported part of the supported shoot

**Fig. 2a-d.** Example of hydraulic properties with height for a bifurcated *Toxicodendron diversilobum* plant in medium light (one stem unsupported, one supported); panels as in Fig. 1

emulsion of latex paint and water was forced into stems for eight days at about 70 kPa. Paint was introduced from the stem tip toward the base (to prevent paint exiting through branch junctions) and thus was restricted to vessels produced in the current year (1989).

## Results

### Hydraulic properties

**At bases of plants.** Unsupported shoots had higher Huber values at their bases than did supported shoots in both