

List of publications of Pedro J. Aphalo

Publications

Refereed publications

Articles in international scientific journals

1. Aphalo P J, Sánchez R A (1986) Stomatal responses to light and drought stress in variegated leaves of *Hedera helix*. *Plant Physiology* **81**, 768-773.
2. Casal J J, Aphalo P J, Sánchez R A (1987) Phytochrome effects on leaf growth and chlorophyll content in *Petunia axillaris*. *Plant Cell and Environment* **10**, 509-514.
3. Casal J J, Aphalo P J (1989) Phytochrome control of chlorophyll content in mature attached leaves of *Petunia axillaris*. *Annals of Botany* **63**, 595-598.
4. Aphalo P J, Jarvis P G (1991) Do stomata respond to relative humidity? *Plant Cell and Environment* **14**, 127-132.
5. Aphalo P J, Gibson D, DiBenedetto A H (1991) Responses of growth, photosynthesis, and leaf conductance to white light irradiance and end-of-day red and far-red pulses in *Fuchsia magellanica*. *New Phytologist* **117**, 461-471.
6. Radoglou K M, Aphalo P, Jarvis P G (1992) Response of photosynthesis, stomatal conductance and water use efficiency to elevated CO₂ and nutrient supply in acclimated seedlings of *Phaseolus vulgaris* L. *Annals of Botany* **70**, 257-264.
7. Aphalo P J, Jarvis P G (1993a) Separation of direct and indirect responses of stomata to light: Results from a leaf inversion experiment at constant intercellular CO₂ molar fraction. *Journal of Experimental Botany* **44**, 791-800.
8. Aphalo P J, Jarvis P G (1993b) An analysis of J. T. Ball's empirical model of stomatal conductance. *Annals of Botany* **72**, 321-327.
9. Aphalo P J, Jarvis P G (1993c) The boundary layer and the apparent responses of stomatal conductance to wind speed and to the molar fractions of CO₂ and water vapour in the air. *Plant Cell and Environment* **16**, 771-783.

10. Vapaavuori E M, Vuorinen A H, Aphalo P J, Smolander H (1995) Relationship between photosynthesis and nitrogen in Scots pine: seasonal variation in seedlings and shoots. *Plant and Soil* **168–169**, 263–270.
11. Aphalo P J, Ballaré C L (*ex aequo*) (1995) On the importance of information-acquiring systems in plant-plant interactions (Essay review). *Functional Ecology* **9**, 5–14.
12. Aphalo P J, Lehto T (1997) Effects of light quality on the growth and N accumulation of birch seedlings. *Tree Physiology* **17**, 125–132.
13. Aphalo P J, Rikala R, Sánchez R A (1997) Effect of CCC on the morphology and growth potential of containerised silver birch seedlings. *New Forests* **14**, 167–177.
14. Lavola A, Julkunen-Tiitto R, Aphalo P, de la Rosa T, Lehto T (1997) The effect of u.v.-B radiation on u.v.-screening secondary metabolites in birch seedlings grown in simulated forest soil conditions. *New Phytologist* **137**, 617–621.
15. Lavola A., Julkunen-Tiitto R, Aphalo P J (1998) Host-plant preference of an insect herbivore mediated by UV-B and CO₂ in relation to plant secondary metabolites. *Biochemical Systematics and Ecology* **26**, 1–12.
16. de la Rosa T M, Aphalo P J, Lehto T. (1998) Effects of far-red light on the growth, mycorrhizas and mineral nutrition of Scots pine seedlings. *Plant and Soil* **201**, 17–25.
17. de la Rosa T M, Lehto T, Aphalo P J. (1999) Does far-red light affect growth and mycorrhizas of Scots pine seedlings grown in forest soil? *Plant and Soil*, **211** 259–268.
18. Aphalo P J, Ballaré C L, Scopel A L. (1999) Plant-plant signalling, the shade avoidance response and competition. *Journal of Experimental Botany*, **50**, 1629–1634.
19. Lavola A, Julkunen-Tiitto R, de la Rosa T, Lehto T, Aphalo P J. (2000) Allocation of carbon to growth and secondary metabolites in birch seedlings under UV-B and CO₂ exposure. *Physiologia Plantarum*, **109**, 260–267.
20. Lehto T, Kallio E, Aphalo P J. (2000) Boron mobility in two coniferous species. *Annals of Botany*, **86**, 547–550.
21. de la Rosa T M, Julkunen-Tiitto R, Aphalo PJ and Lehto T. (2001) Secondary metabolites and nutrient concentrations in silver birch seedlings under five levels of daily UV-B exposure and two relative nutrient addition rates. *New Phytologist*, **150**, 121–131.

22. Finér L, Aphalo P J, Kettunen U, Mannerkoski H, Repo T, Öhman J. (2001) A new tree growth facility for studying shoot, root, and soil processes. *Plant and Soil*, **231**, 137–149.
23. Aphalo P J, Lehto T. (2001) Effect of lateral far-red light supplementation on the growth and morphology of birch seedlings and its interaction with mineral nutrition. *Trees – Structure and Function*, **15**, 297–303, DOI 10.1007/s004680100100.
24. Möttönen M, Aphalo P J, Lehto T. (2001) The role of boron in drought resistance of Norway spruce (*Picea abies*) seedlings. *Tree Physiology*, **21**, 673–681.
25. Möttönen M, Lehto T, Aphalo P J. (2001) Growth dynamics and mycorrhizas of Norway spruce (*Picea abies*) seedlings in relation to boron availability. *Trees – structure and function*, **15**, 319–326, DOI 10.007/s004680100106.
26. Tegelberg R, Julkunen-Tiitto R, Aphalo P J (2001) The effects of long-term elevated UV-B on the growth and phenolics of field-grown silver birch (*Betula pendula*). *Global Change Biology*, **7**, 839–848.
27. Luoranen J, Rikala R, Aphalo P J. (2002) Effect of CCC and daminozide on the growth of silver birch container seedlings during three years after spraying. *New Forests*, **23**, 71–80.
28. Lahti M, Aphalo P J, Finér L, Lehto T, Leinonen I, Mannerkoski H., Ryyppö A (2002) Soil temperature, gas exchange and nitrogen status of 5-year-old Norway spruce seedlings *Tree Physiology*, **22**, 1311–1316.
29. Tegelberg R, Aphalo P J, Julkunen-Tiitto R (2002) Effects of long-term, elevated ultraviolet-B radiation on phytochemicals in the bark of silver birch (*Betula pendula*). *Tree Physiology*, **22**, 1257–1263.
30. Aphalo P J, Schoettle A W, Lehto T (2002) Leaf life span and the mobility of “non-mobile” mineral nutrients - the case of boron in conifers. *Silva Fennica*, **36**, 671–680.
31. de la Rosa T M, Aphalo P J, Lehto T (2003) Effects of ultraviolet-B radiation on growth, mycorrhizas and mineral nutrition of silver birch (*Betula pendula*) seedlings grown in low-nutrient conditions. *Global Change Biology*, **9**, 65–73.
32. Lavola A, Aphalo P J, Lahti M, Julkunen-Tiitto R (2003) Nutrient availability and the effect of increasing UV-B radiation on Scots pine. *Environmental and Experimental Botany*, **49**, 49–60.

33. Aphalo P J, Rikala R. (2003) Apparent quality and actual field performance of silver-birch seedlings grown in containers of different volume and at different spacings. *New Forests*, **25**, 93-108.
34. Tegelberg R, Veteli T, Aphalo P J, Julkunen-Tiitto R (2003) Clonal differences in growth and phenolics of willows exposed to elevated ultraviolet-B radiation. *Basic and Applied Ecology*, **4**, 219-228.
35. Möttönen M, Lehto T, Aphalo P J, Kukkola M, Mälkönen E (2003) Response of mature stands of Norway spruce (*Picea abies*) to boron fertilization. *Forest Ecology and Management*, **180**, 401–412.
36. Veteli T O, Tegelberg R, Sipura M, Tahvanainen J, Aphalo P J (2003) Interactions between willows and insect herbivores under enhanced ultraviolet-B radiation. *Oecologia*, **137**, 312–320 (DOI 10.1007/s00442-003-1298-0).
37. Rousseaux M C, Julkunen-Tiitto R, Searles P S, Scopel A L, Aphalo P J, Ballaré C L. (2004) Solar UV-B radiation affects leaf quality and insect herbivory in the southern beech tree *Nothofagus antarctica*. *Oecologia*, **138**, 505–512 (DOI 10.1007/s00442-003-1471-5).
38. Lehto T, Lavola A, Kallio E, Aphalo P J. (2004) Boron uptake by ectomycorrhizas. *Mycorrhiza*, **14**, 209–212.
39. Lehto T, Räisänen M, Lavola A, Julkunen-Tiitto R, Aphalo P J (2004) Boron mobility in deciduous forest trees in relation to their polyols. *New Phytologist*, **163**, 333–339.
40. Lehto T, Lavola A, Julkunen-Tiitto R and Aphalo P J (2004) Boron retranslocation in Scots pine and Norway spruce. *Tree Physiology*, **24**, 1011–1017.
41. Tegelberg R, Julkunen-Tiitto R, Aphalo P J (2004) R:FR light ratio and UV-B radiation: their effects on leaf phenolics and growth of silver birch seedlings. *Plant Cell and Environment*, **27**, 1005–1013.
42. Lahti M, Aphalo P J, Finér L, Ryyppö A, Lehto T, Mannerkoski H (2005) Effects of soil temperature on shoot and root growth and nutrient uptake of 5-year-old Norway spruce seedlings. *Tree Physiology*, **25**, 115–122.
43. Möttönen M, Lehto T, Rita H, Aphalo P J (2005) Recovery of Norway spruce seedlings from repeated drought as affected by boron nutrition. *Trees – structure and function*, **19**, 213–223.
44. Julkunen-Tiitto R, Häggman H, Aphalo P J, Lavola A, Tegelberg R, Veteli T (2005) Growth and defense in deciduous trees

and shrubs under UV-B. *Environmental Pollution*, **137**, 404–414.
doi:10.1016/j.envpol.2005.01.050

45. Aphalo P J, Rikala R (2006) Spacing of silver birch seedlings grown in containers of equal size affects their morphology and its variability. *Tree Physiology*, **26**, 1227–1237.
46. Bandilla M, Valtonen E T, Suomalainen L-R, Aphalo P J, Hakalahti T. (2006) A link between ectoparasite infection and susceptibility to bacterial disease in rainbow trout. *International Journal for Parasitology*, **36**, 987–991.
47. Aphalo P J, Lahti M, Lehto T, Repo T, Rummukainen A, Mannerkoski H, Finér L (2006) Responses of silver birch saplings to low soil temperature. *Silva Fennica*, **40**, 429–442.

Articles in professional journals

48. Aphalo P J (1997) A proposal for citation commands in L^AT_EX3. *TUGboat*, **18**(4), 297–302.

Unrefereed publications

Articles in international scientific journals

49. Aphalo P J, Tegelberg R, Julkunen-Tiitto, R. (1999) The modulated UV-B irradiation system at the University of Joensuu. *Biotronics*, **28**, 109–120.
50. Aphalo P J (2003) Do current levels of UV-B radiation affect vegetation? The importance of long-term experiments. *New Phytologist*, **160**, 273–276. (Invited commentary.)

Articles in national scientific series

51. Lehto T, Möttönen M, Räisänen M, Lavola A, Aphalo PJ (2004) Boorin merkitys puiden hienojuurille ja mykorritsoille. In: Rikala R (ed). *Metsäntutkimuslaitoksen Tiedonantoja*, **934**, 47–52.
52. Lampinen A, Aphalo PJ (2005) Main Results of Modelling with Stella in Limits to Growth 30-Year Update. *Futura*, **2–3/05**, 39–48.

Chapters in books

53. Paruelo J M, Aphalo P J, Hall C A S, Gibson D (1987) Energy use and economic output for Argentina. In: *Environmental Economics. The analysis of a major interface*, G. Pillet, T. Murota (eds). R. Leimgruber, Geneva, pp. 169–184.

Articles in professional journals

54. Aphalo P J, Ballaré C L, Díaz S (1996) Possible effects of increased UV-B on the vegetation of Tierra del Fuego. *Ecodecision* (Montreal) **19**, 71–73.
55. Aphalo P J (1998) Dashes. (Contribution to the regular column ‘Hey — It works!’.) *TUGboat*, **19**, 136.

Articles in conference proceedings

56. Aphalo P J, Castello L, Gibson D, Fernández Alduncin R J, Paruelo J M (1986) El crecimiento económico y los recursos energéticos en la Argentina desde una perspectiva termodinámica: Un modelo de simulación. (Economic growth and energy resources in Argentina from a thermodynamic perspective: a simulation model.) *Trabajos Técnicos del II Congreso Argentino sobre el Uso Racional de la Energía*, pp 1549-1569. AAPURE, Buenos Aires.
57. Aphalo P J (1994) Kasvatustiheyden vaikutus paakkutaimien ominaisuuksiin (Effect of density during growth in the nursery on the properties of containerised seedlings). In: *Taimitarhapäivät Suomen joen tutkimusasemalla: 17.-18.8.1993*, H. Smolander, J. Rautala (eds). *Metsäntutkimuslaitoksen Tiedonantoja* **496**, 41–47.
58. Rikala R, Aphalo P (1998) Kasvatustiheyden ja paakkukoon vaikutus taimien ominaisuuksiin taimitarhalla ja menestymiseen istutuksen jälkeen (Effects of density and container size on seedling properties in the nursery and their performance after planting). In: *Taimitarhatutkimuksen vuosikirja 1998*, M. Poteri (ed). *Metsäntutkimuslaitoksen Tiedonantoja* **696**, 21–35.
59. Lehto T, Räisänen M, Möttönen M, Lavola A, Repo T, Julkunen-Tiitto R, Aphalo PJ (2005) Boron deficiencies and boron cycling in the boreal forest. In: *Plant Nutrition for Food Security, Human Health and Environmental Protection*, Li CJ et al. (eds). XV International Plant Nutrition Colloquium. pp. 1070–1071. (Extended abstract.)

Theses (unpublished)

- Ingeniero Agrónomo: 1982.** Effects of light and water stress on the leaf conductance of variegated *Hedera helix* leaves¹. (In Spanish.) Universidad de Buenos Aires, Argentina.

¹Paper 1 is based on data included in this monograph.

M. Sc.: 1988. Adaptive value of the modulation of the activity of the photosystems that control stomatal opening. Its evaluation by means of a simulation model. (In Spanish.) Universidad de Buenos Aires, Argentina.

Ph. D.: 1991. Interactions in stomatal function². Edinburgh University, Scotland.

Software

1. Simonic A, Aphalo P J (1998) *RootView*. A program for tracing and measuring roots in minirhizotron and rhizotron images.

Course notes, software manuals and other unpublished monographs

1. Aphalo P J (1991) Intercambio de energía y materia entre las plantas y la atmósfera (Exchange of energy and matter between plants and the atmosphere). Escuela para Graduados. Facultad de Agronomía, Universidad de Buenos Aires, 50 pp.
2. Aphalo P J, Simonic A (1999) RootView – overview and manual. University of Joensuu and Finnish Forest Research Institute, Joensuu, 27 pp. <http://www.jyu.fi/~aphalo/RootView/manual.pdf>
3. Aphalo P J (1999, 2000) Suggested Reading and Bibliography. *The Plant Photobiology Notes*, no. 0. Faculty of Forestry, University of Joensuu, 82 pp.
4. Aphalo P J (1999, 2001) Light signals and the growth and development of plants — a gentle introduction *The Plant Photobiology Notes*, no. 1. Faculty of Forestry, University of Joensuu, 34 pp. Updated 2005 at University of Jyväskylä. Updated 2006 at University of Helsinki.

Manuscripts

1. Sutinen S, Aphalo P J, Lehto T. Does timing of boron application affect needle and bud structure in Scots pine and Norway spruce seedlings? Submitted to *Trees — structure and function*.
2. Lehto T, Räisänen M, Aphalo P J. Boron mobility in *Betula* and *Sorbus* species.

²Papers 4, 7, 8 and 9 are based on chapters of this dissertation.

3. Aphalo P J, Vapaavuori E, de la Rosa T M, Lehto T. Does UV-B radiation affect gas-exchange and Rubisco activity of *Betula pendula* seedlings?

In preparation

1. Aphalo P J, Kuokkanen K, Kotilainen T, Lehto T, Kellomäki S, Niemelä P. Silver birch leaf litter quality and decomposability are affected by elevated CO₂ and temperature under a range of mineral nutrient availabilities.
2. Luoranen J, Lahti M, Aphalo P J, Rikala R. Hardening and dehardening of nutrient loaded two-year-old *Picea abies* seedlings.
3. Kotilainen T, Tegelberg R, Julkunen-Tiitto R, Vapaavuori E, Haimi J, Aphalo P J. The effect of UV radiation on the decomposability and chemical composition of white birch (*Betula pubescens*) and grey alder (*Alnus incana*) leaf litter: an exclusion experiment in the field.
4. Kotilainen T, Aphalo P J, Haimi J. The performance of wood lice and other soil fauna on white birch and grey alder leaf litter originating from branches receiving near ambient UV, reduced UV-B, or reduced UV-A and UV-B.
5. Kotilainen T, Tegelberg R, Julkunen-Tiitto R, Aphalo P J. The effects of natural UV-B and UV-A on the phenolic composition of the foliage of grey alder and white birch trees: a branch filter experiment in the field.
6. Kotilainen T, Tegelberg R, Julkunen-Tiitto R, Aphalo P J. The relative effectiveness of solar UV-A and UV-B for the accumulation of phenolics in birch and alder foliage throughout a growing season: a field test of the suitability of different action spectra.
7. Aphalo P J, Rikala R. Spectrally selective films for the regulation of growth of Norway spruce seedlings in nurseries: an environmentally friendly alternative to the possible use of chemical growth regulators.
8. Robson T M, Aphalo P J. Effects of ultraviolet-B radiation on the dynamics of leaf expansion in one-year-old *Betula pendula* and *B. pubescens* seedlings.
9. Lahti M, Aphalo P J, Lehto T. Effects of the fluence of ultraviolet radiation on the gas-exchange and carbon stable isotope discrimination by Norway spruce seedlings.
10. Lahti M, Lehto T, Aphalo P J. Effect of UV-B radiation on growth, mycorrhizas and mineral nutrition of *Picea abies* seedlings.

11. Aphalo P J, Rikala R. Effects of cell volume and density on the size, morphology and quality of container grown Scots pine seedlings.
12. Aphalo P J, Julkunen-Tiitto R. The effect of far-red light on leaf flavonoids and other phenolics in silver birch seedlings grown under two different nutrient relative addition rates.
13. Rikala R, Aphalo P J. Apparent quality and actual field performance of Norway spruce seedlings grown in containers of different volume and at different spacings.