

Factors favouring spreading of Heterobasidion root rot in coniferous forests and preventive measures against it



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Heterobasidion annosum s.l.



500 milj. EUR

23% decayed *P. abies*
in Latvia

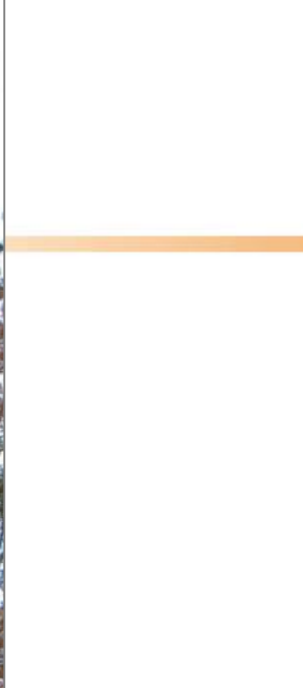
Heterobasidion spp.

Heterobasidion annosum s.s.
(P type)



Heterobasidion parviporum
(S type)





Primary infection



Secondary infection

Fruit bodies of *H.annosum* – primary infection





Number of spores per $\text{dm}^2/24\text{h}$:

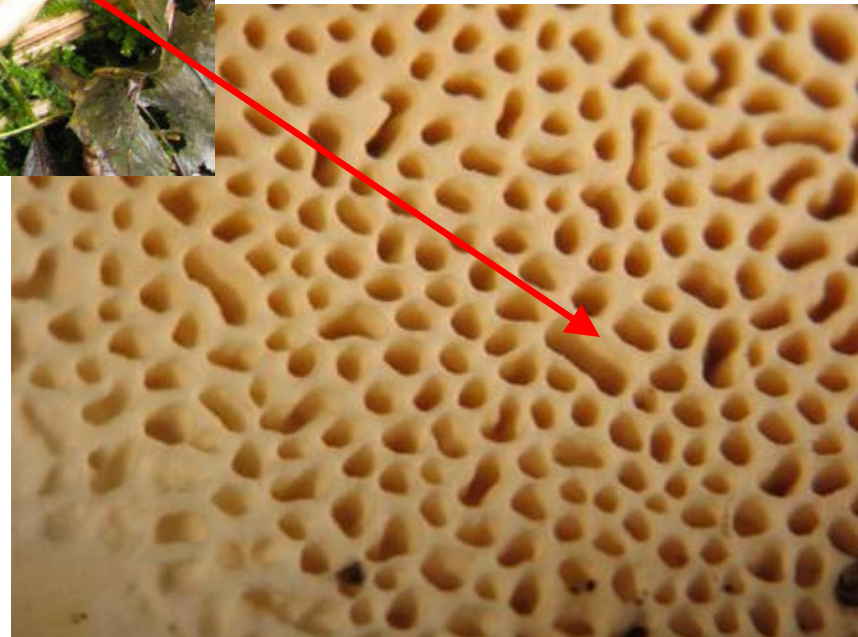
Beneath fruit body 8.8 milj.

10m 1818

30m 220

70m 43

100m 22



Development of fruit bodies of *H. annosum* on decayed trees and logs



Development of *H. annosum* fruit bodies



378 trees



205 stumps



449 logs

H. annosum

1784 cm²

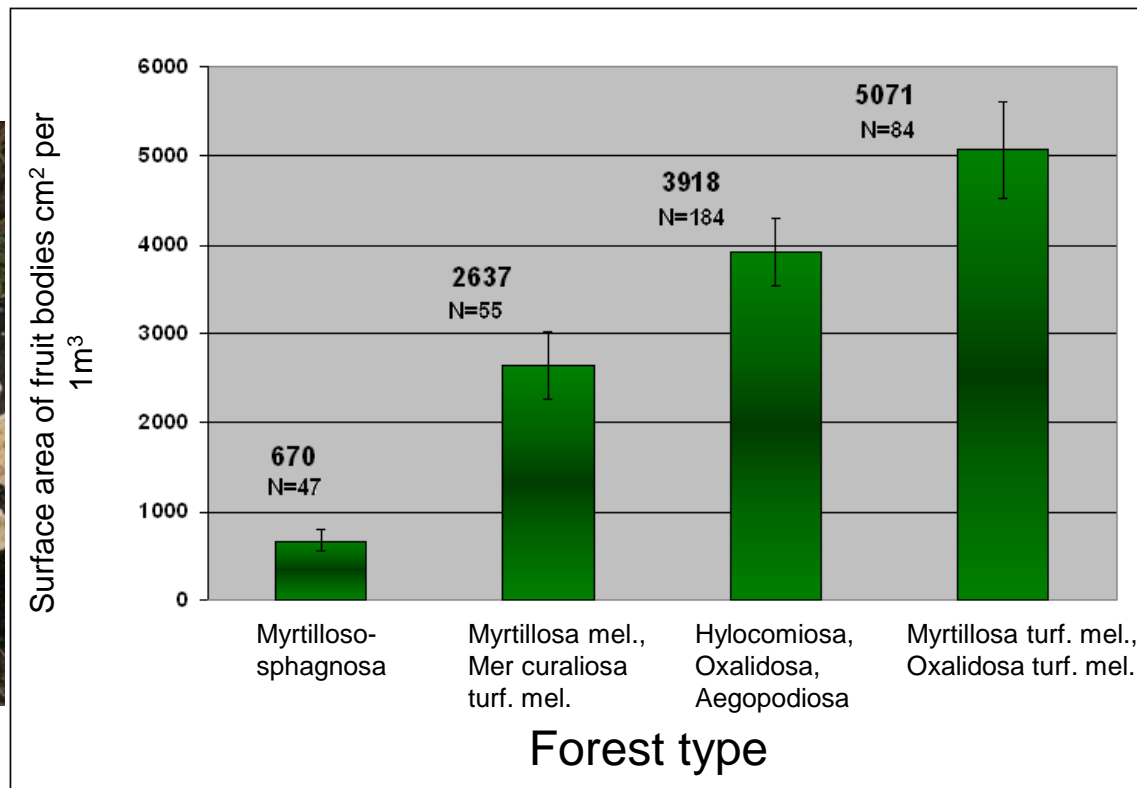
36380

H.annosum
fruit bodies

0,01 cm²



Surface area of *H. annosum* fruit bodies cm² per 1m³ on logs



Germany > Finland > Latvia

Biodiversity! – 190 fruit bodies with total surface area 2633cm²?





Fomitopsis rosea (Alb. & Schwein.) P. Karst.

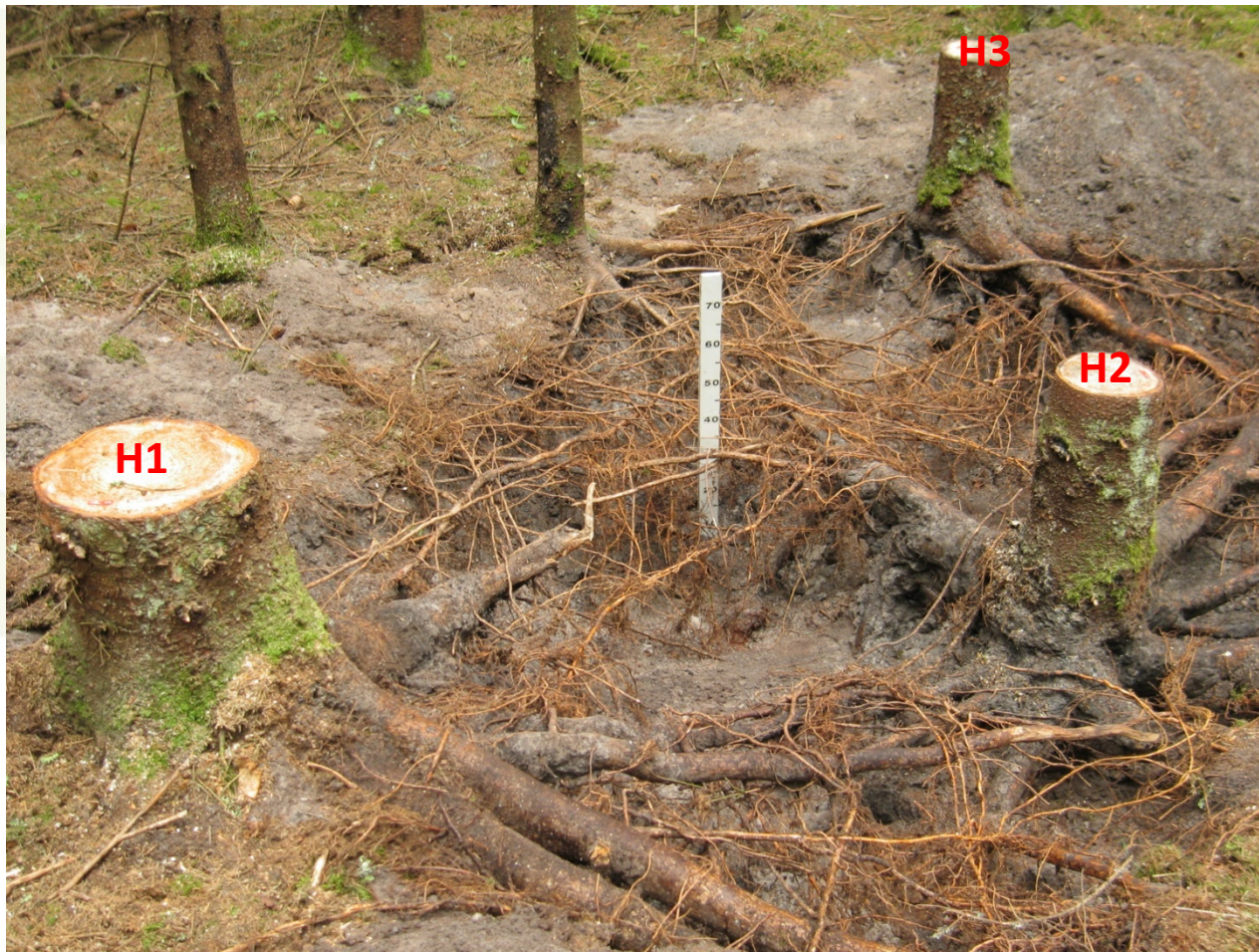


45 yrs !

H. a.



Secondary infection





Stump removal

Bioenergy

Forest
regeneration

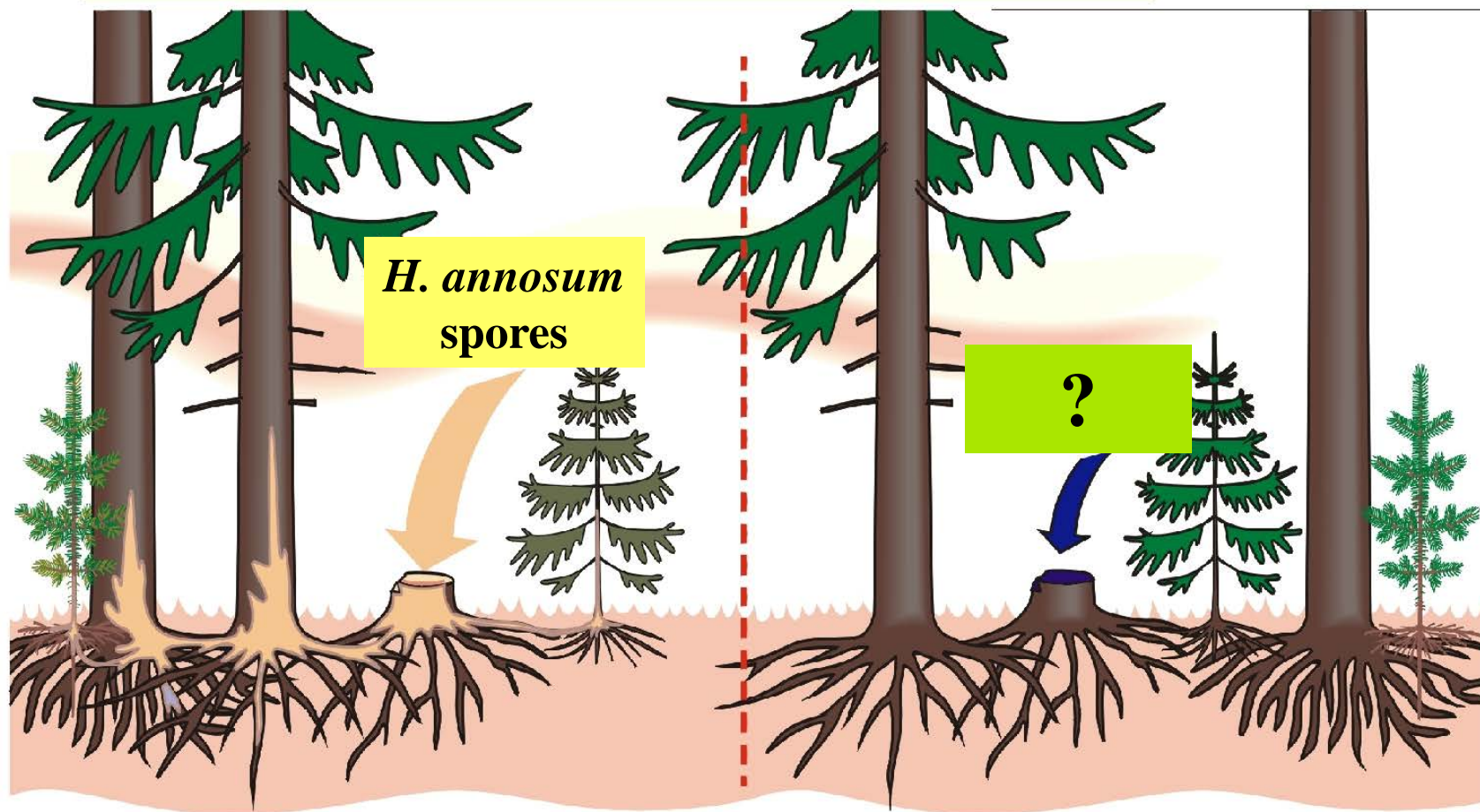
Heterobasidion,
Armillaria sp.
frequency

Biodiversity of
fungal
population

Insect damage



Belarus, Canada, Denmark, Finland, New Zealand, Sweden, UK, Ukraine, USA



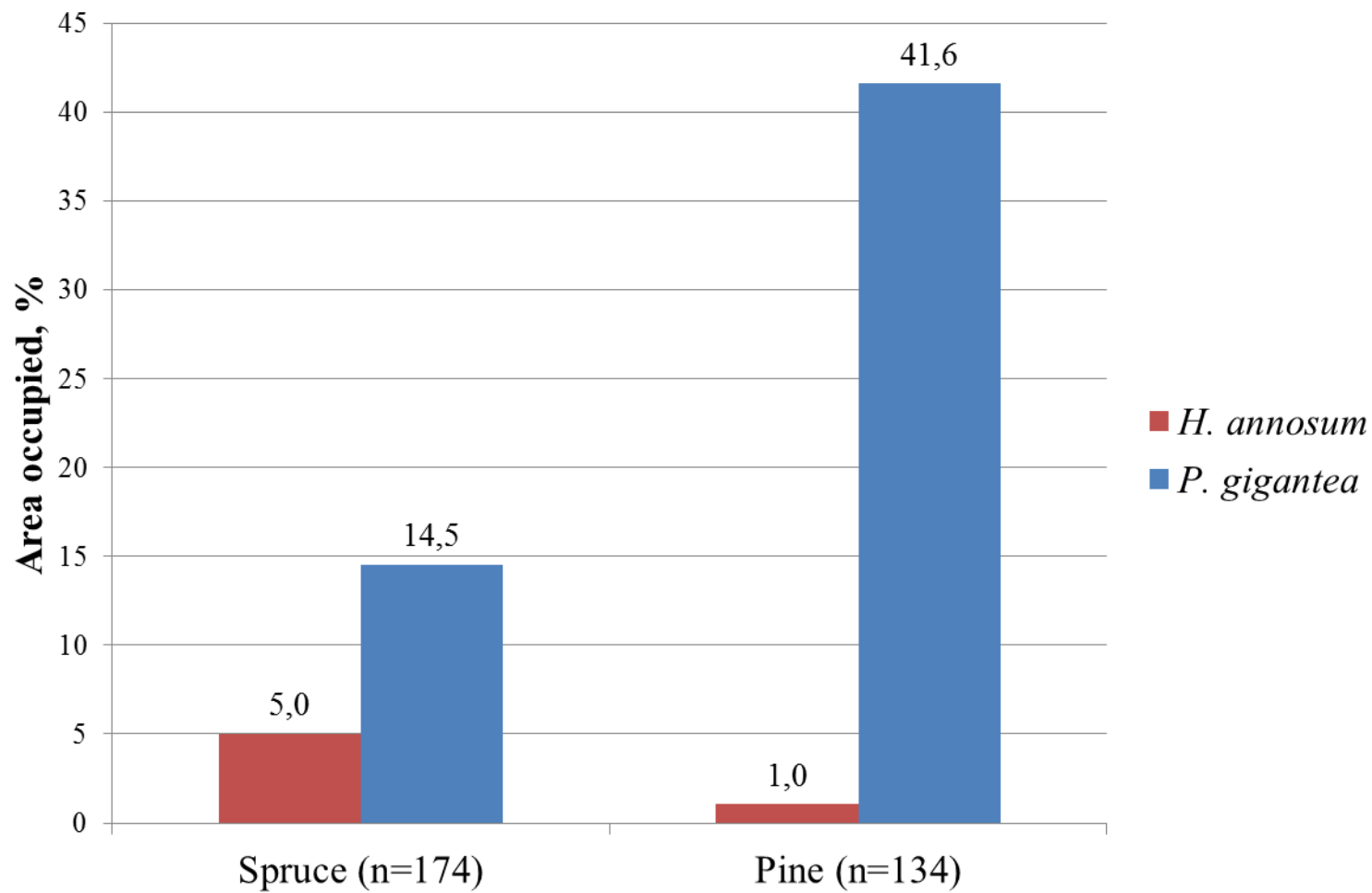
(Verdera Oy ilustrācija)

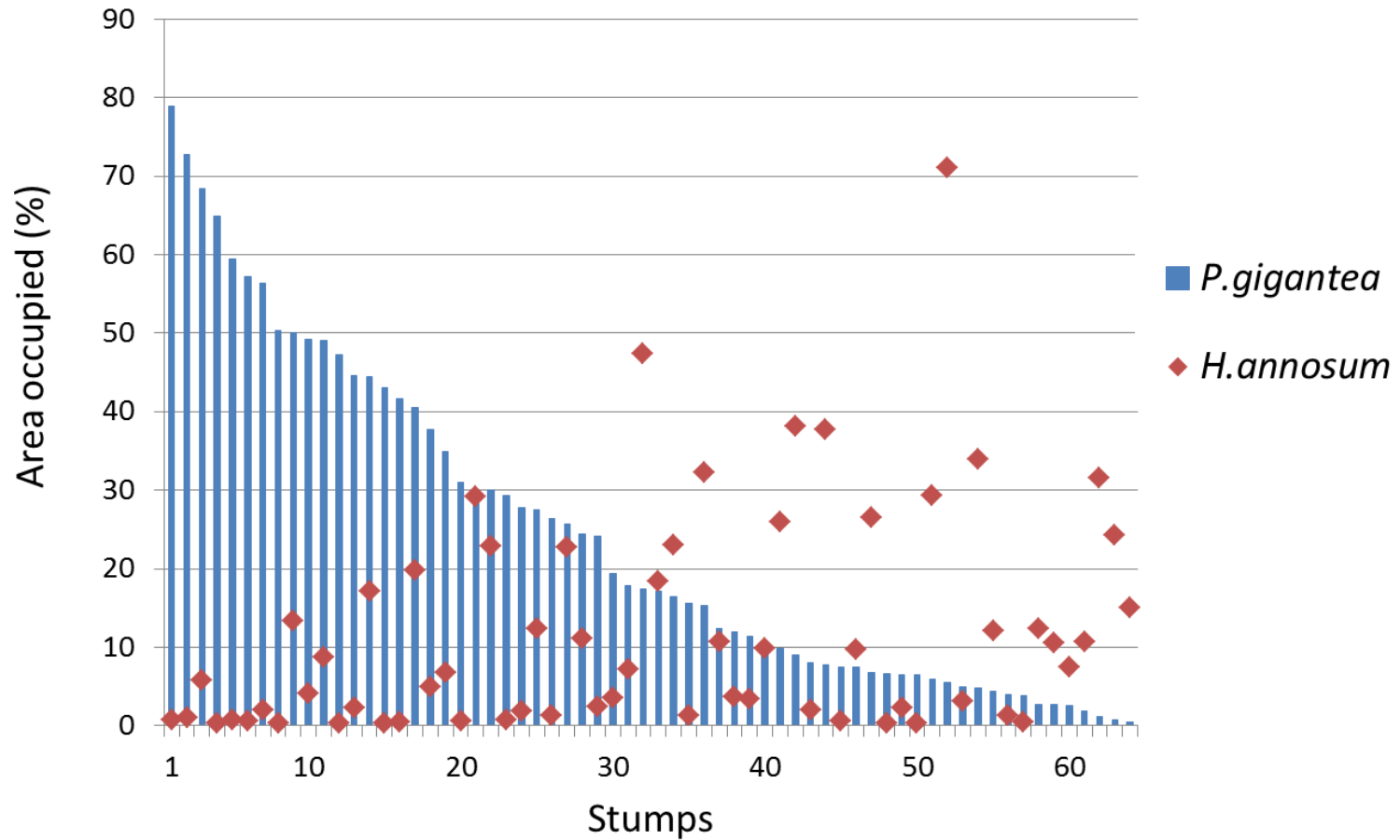


?

Phlebiopsis gigantea (Fr.) Jül.







Naturally infected spruce stumps with *P. gigantea* and *H. annosum*

Phlebiopsis gigantea



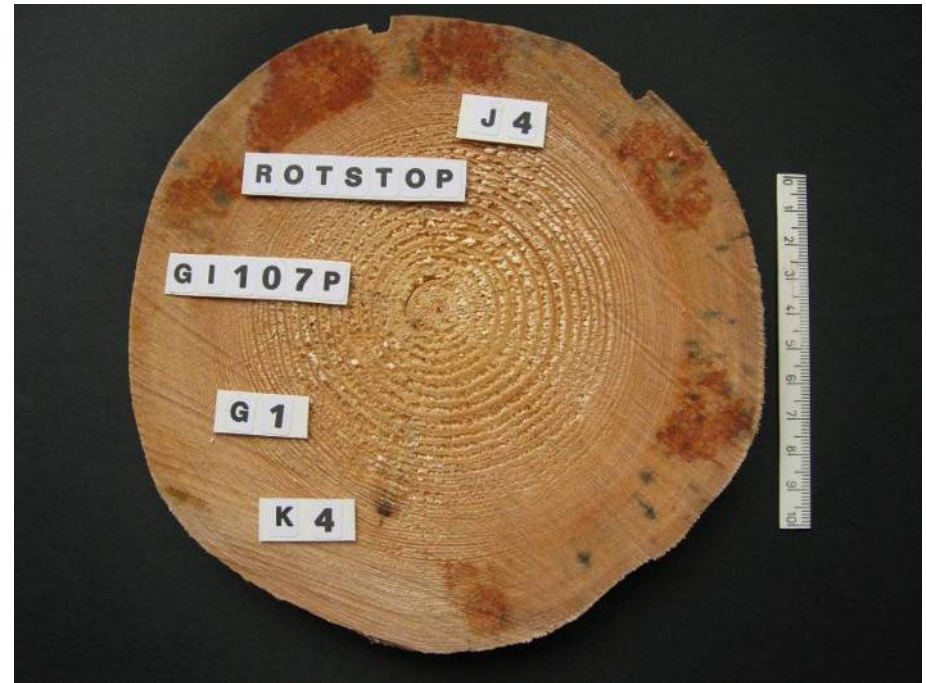
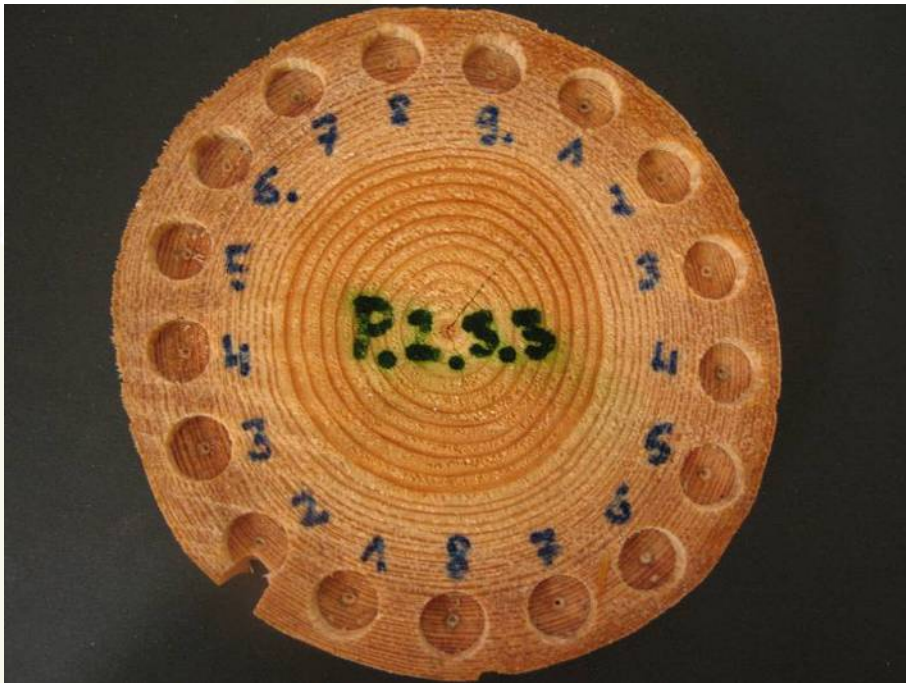
Phlebiopsis gigantea



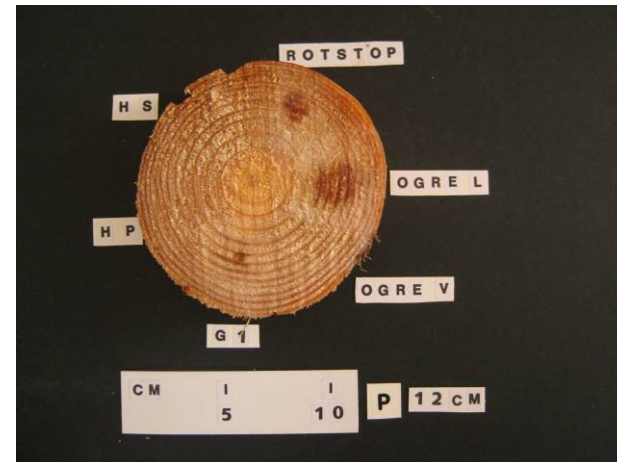
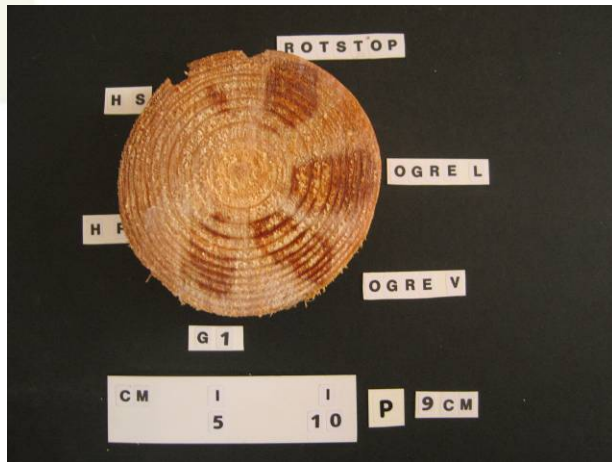
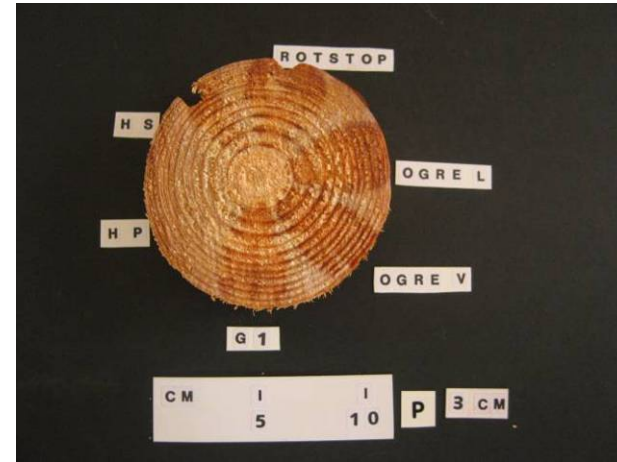
Field experiments - growth rate of *P. gigantea*



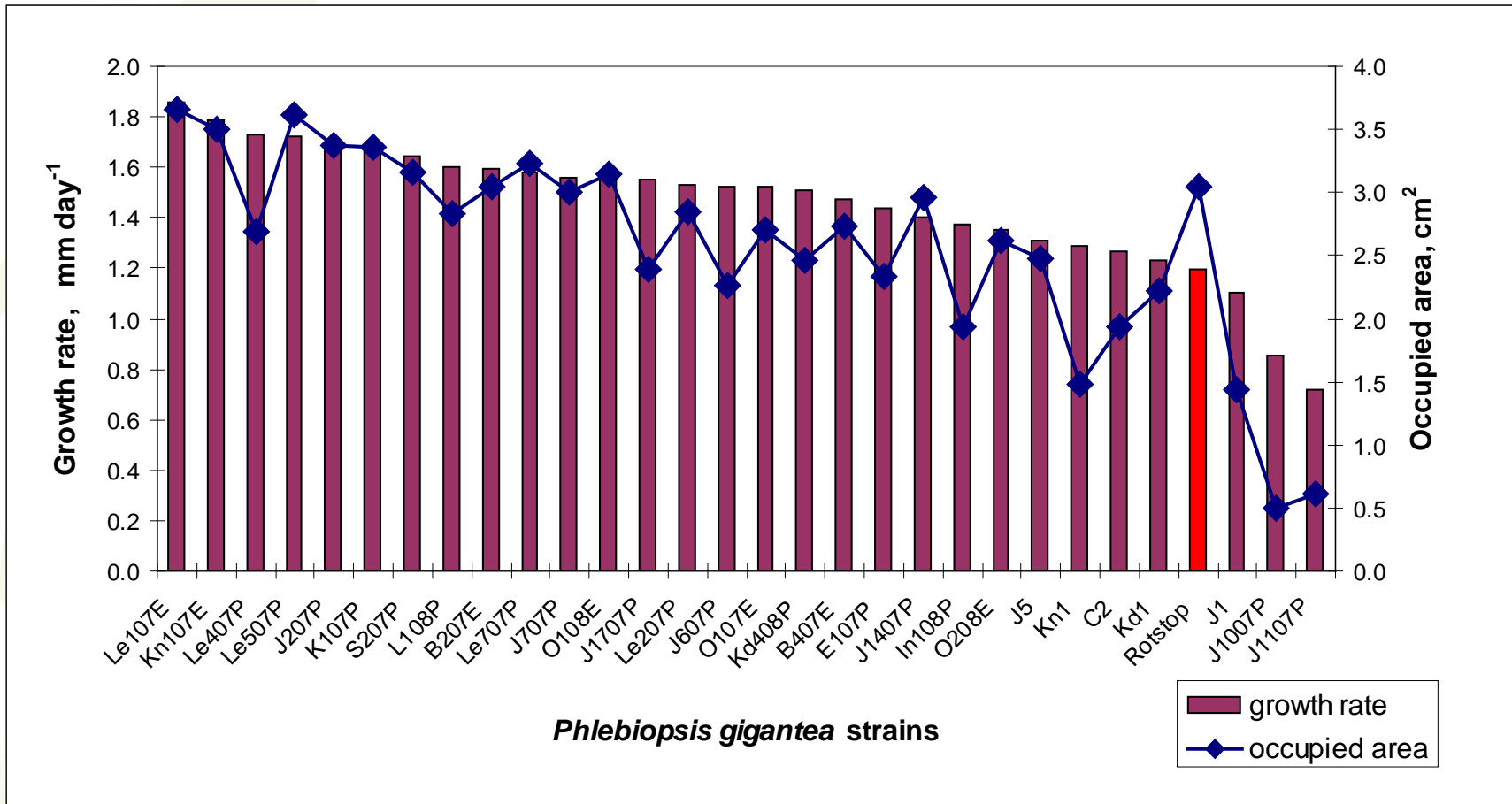
Growth rate of *P.gigantea*



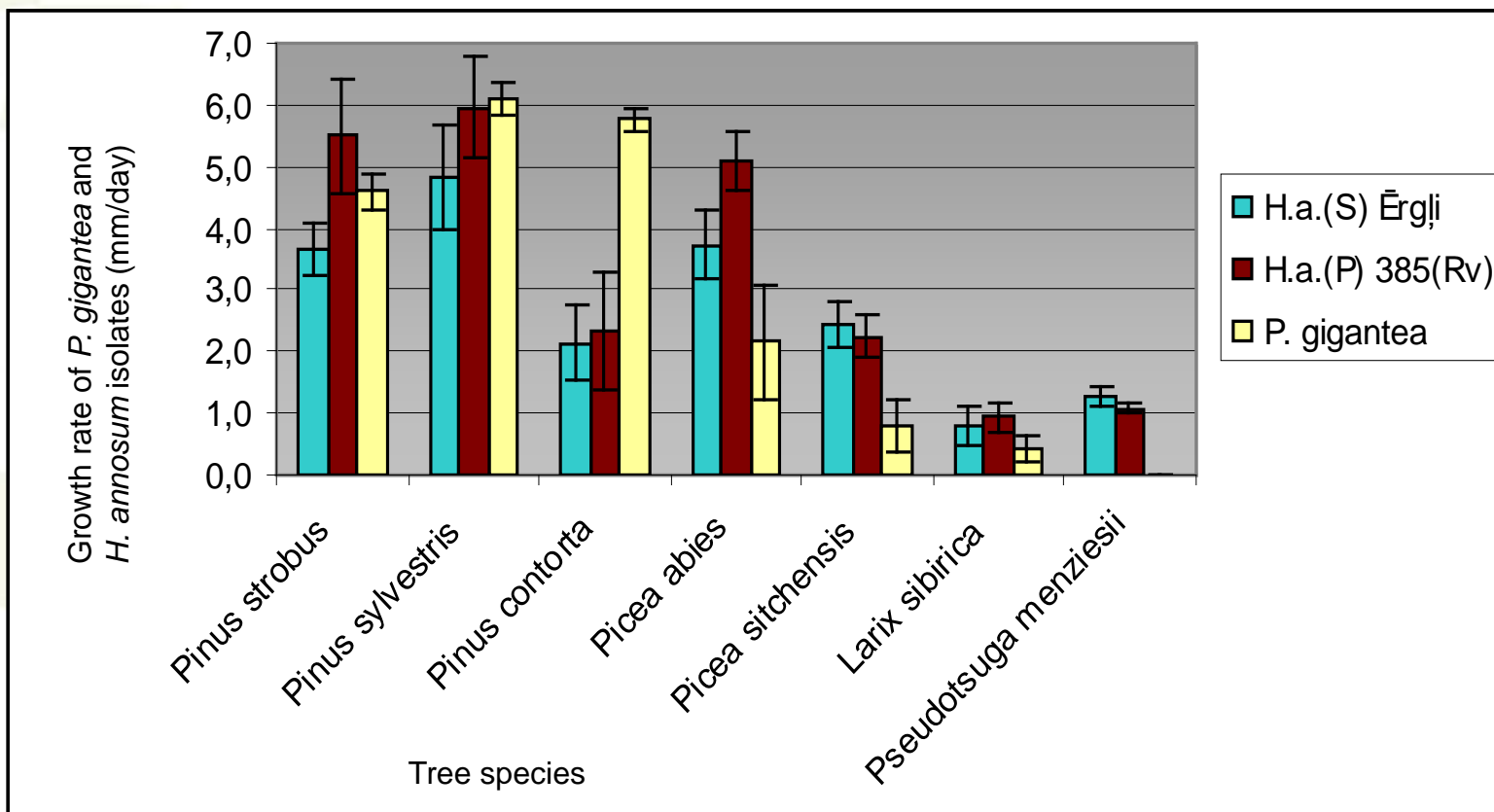
Growth rate of *P. gigantea* in *P. sylvestris*



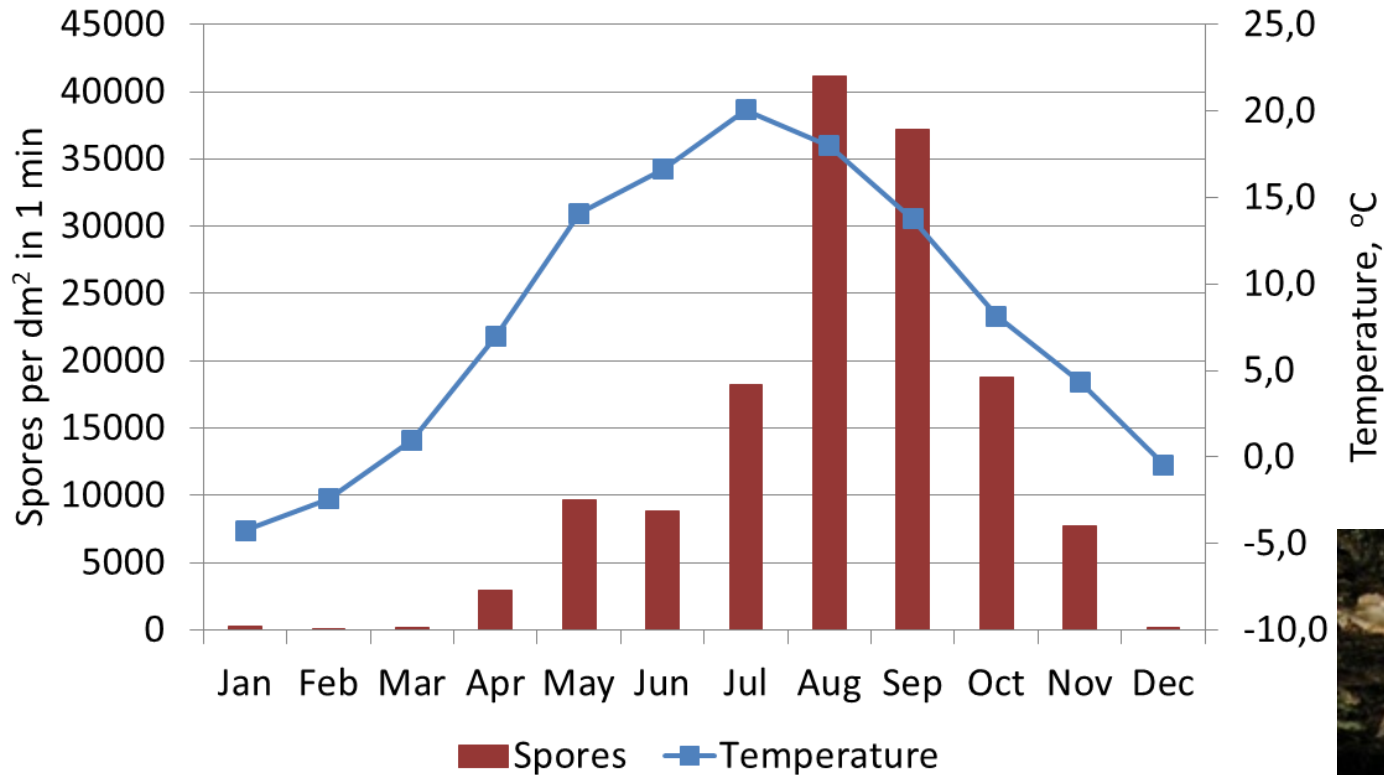
Growth rate of *P.gigantea* in *P. abies*



Growth rate of *H. annosum* and *P. gigantea* in different tree species



Sporulation dynamics of *H. annosum* (2012-2014)



Finland, Sweden, Denmark, France, Italy



22.12.2007





***Phlebiopsis gigantea* (Fr.) Jül. (31.12.2013)**





Thank You for Your attention!



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