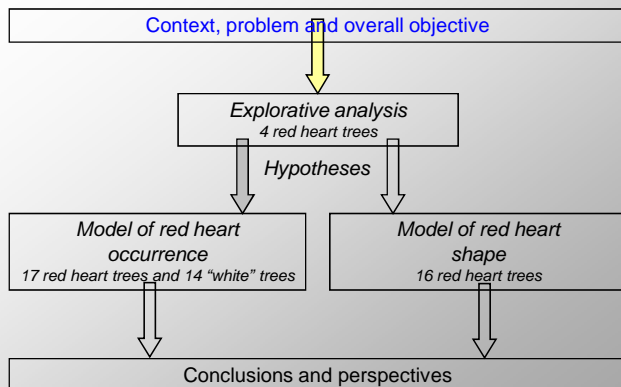
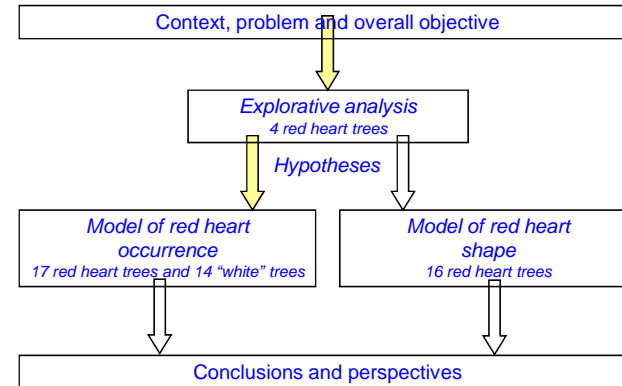


Approaches to the modelling of the occurrence and shape of red heartwood in Beech (*Fagus sylvatica* L.) at the individual tree level

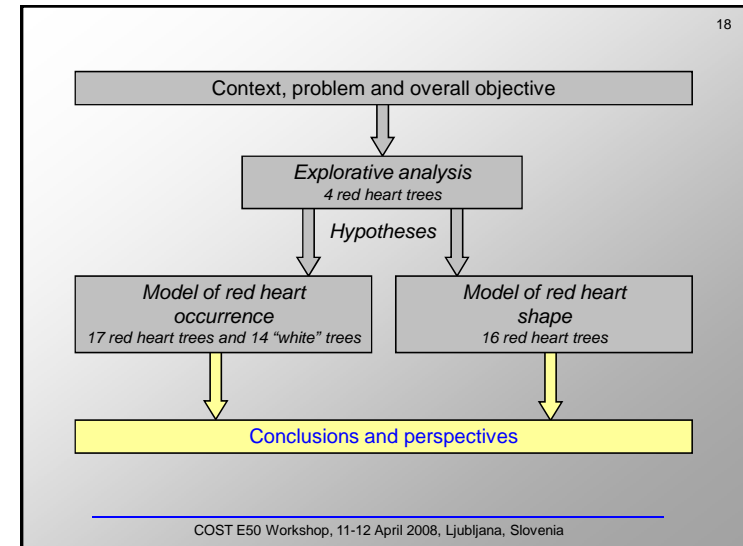
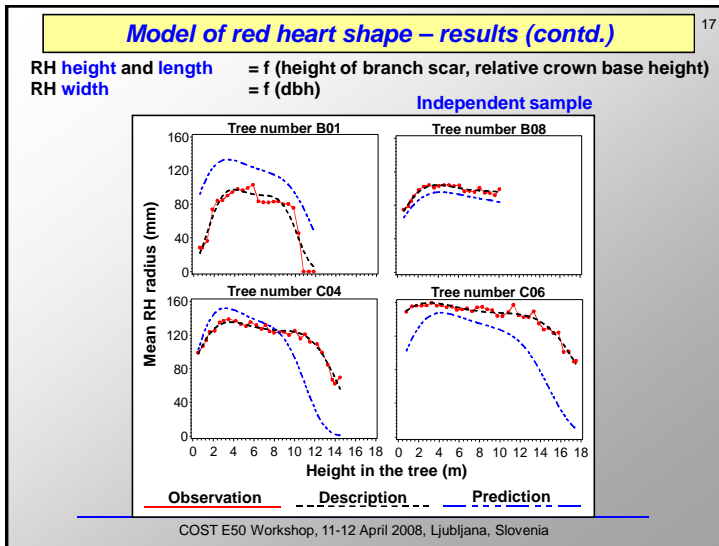
Holger Wernsdörfer, Thiéry Constant, Gilles Le Moguédec, Frédéric Mothe, Ute Seeling, Gérard Nepveu

LERFoB (Joint Research Unit for Forest and Wood Resources), INRA-AgroParisTech, Nancy, France
University of Freiburg, Institute of Forest Utilisation and Work Science, Germany



Context

- For high value industrial utilisation of beechwood, light-coloured ("white") wood and coloured heartwood have to be distinguished
 - Facultative formation of coloured heartwood in Beech, usually red heartwood (RH)
 - RH formation (Zycha 1948, Torelli 1985) is initiated by penetration of air (oxygen) into the stem is related to tree growth characteristics and possibly site
- ⇒ Foresters aim at predicting RH occurrence and controlling its formation by silvicultural means
- ⇒ Wood industry aims at optimising the yield of "white" beechwood in roundwood processing



Conclusions 19

Explorative analysis:

- Relationship between certain dead branches/scars (stem outside) and RH (stem inside)
- Relationship both visual and geometric

Model of RH occurrence:

- Individual effect of branch scars on RH initiation
- Effect at the dendrometric level

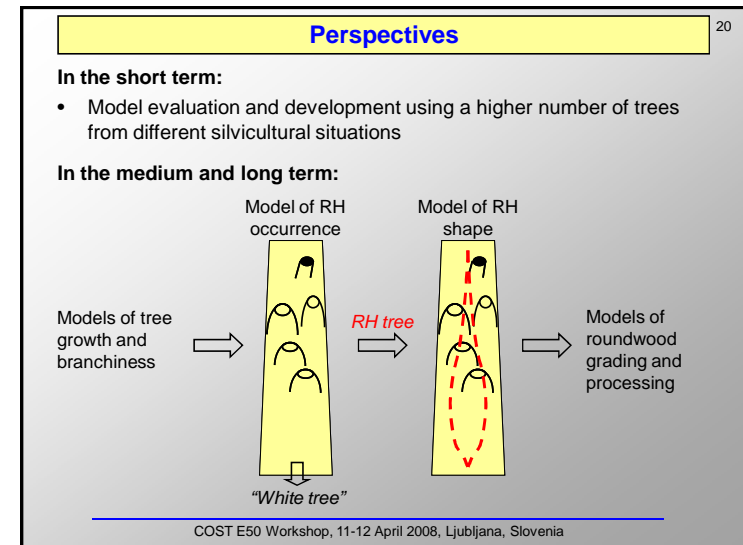
Model of RH shape:

- Parameters for the RH height, length and width
- Estimation of parameters based on branch scars and dendrometric variables

Characteristics of the model approaches:

- Based on "functional" hypotheses about RH initiation and development
- Input variables can be controlled by silviculture

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**Thank you
for your attention !**

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