Does strict protection assure conservation of Quercus Robur dominated forests along Tundzha River, Southeast Bulgaria

Tzvetan Zlatanov[1], Georgi Hinkov[2], Georgi Gogushev[3], Magdalena Zlatanova[1], Nickolay Tsvetanov[4]

1. Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences
2. Forest Research Institute, Bulgarian Academy of Sciences
3. Regional Forest Directorate, Blagoevgrad
4. University of Forestry, Sofia

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Study area: Quercus Robur dominated forests in maintained reserve Gorna Topchiya and protected sites Yulievska koriya and Tulovska koriya

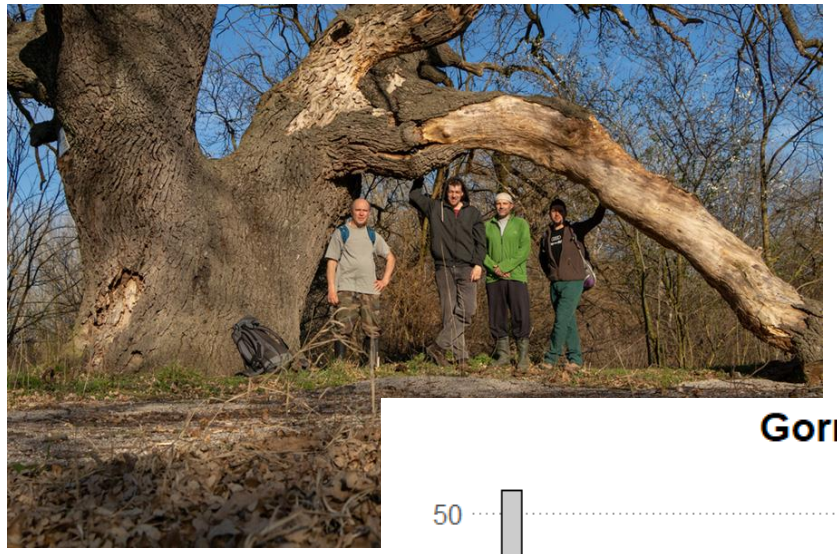
Quite anthropogenic landscape

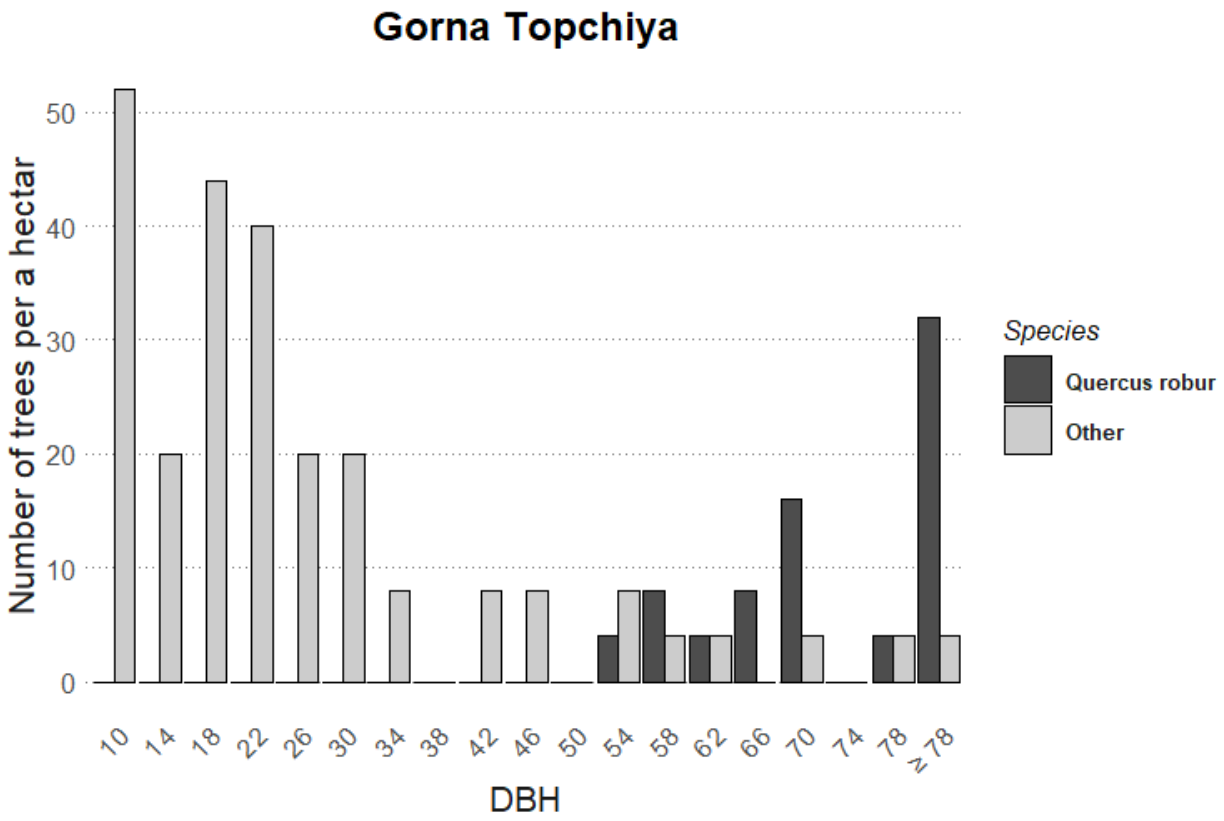
- Scattered forests among extensive agricultural fields
- Heavily altered moisture regime, due to dikes along Tundzha river and many irrigation channels
- Illegal cutting of solitary trees and grazing of home animals – ships, cows and horses
- No targeted forest management & full abandonment by environmental & forest authorities

Gorna Topchiya reserve

Tundzha river

DBH distribution of the trees

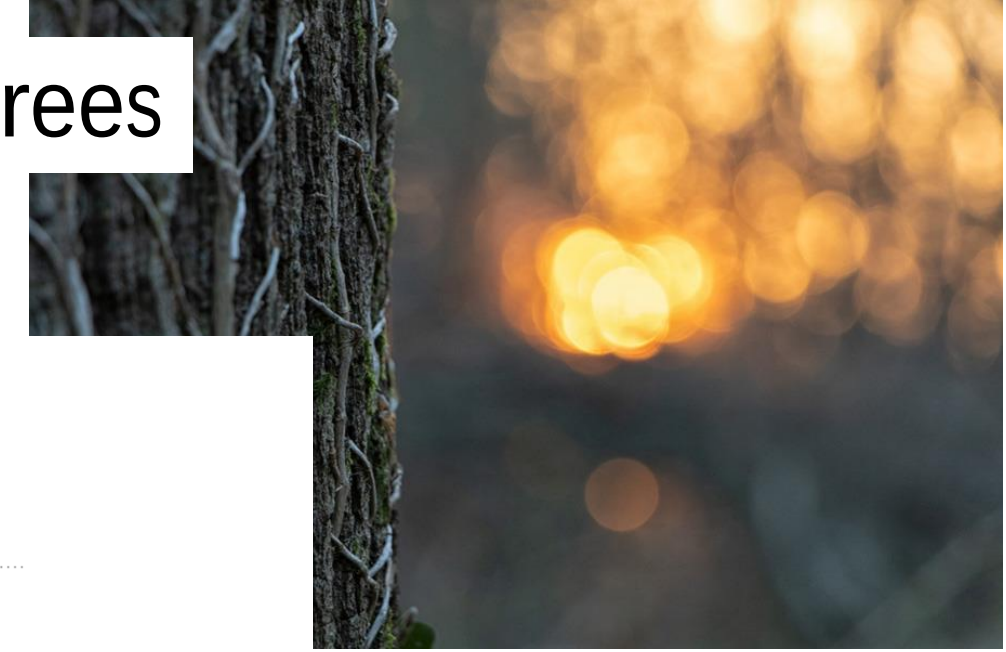


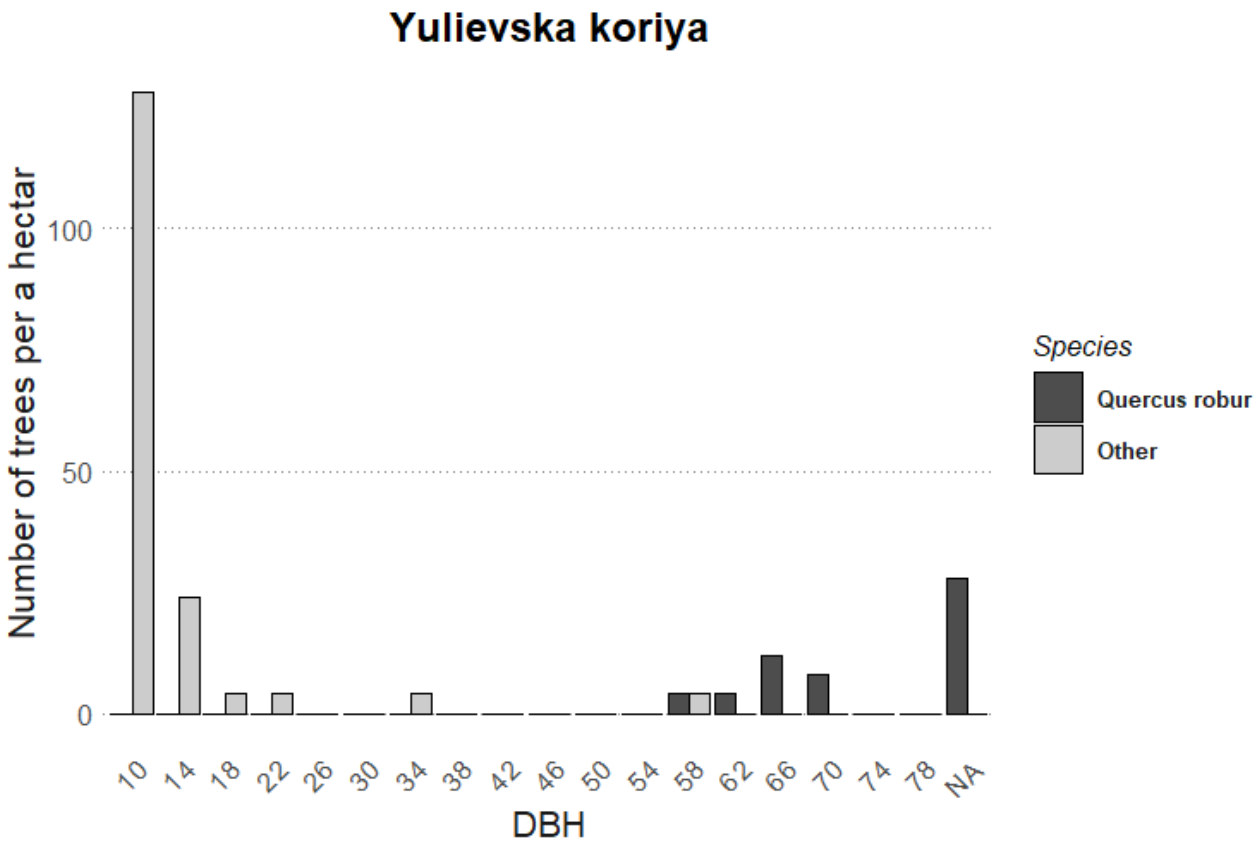


Q. robur:
76 trees ha-1

Other species:
248 trees ha-1
Ulmus minor
Acer campestre
Fraxinus angustifolia sol.

DBH distribution of the trees

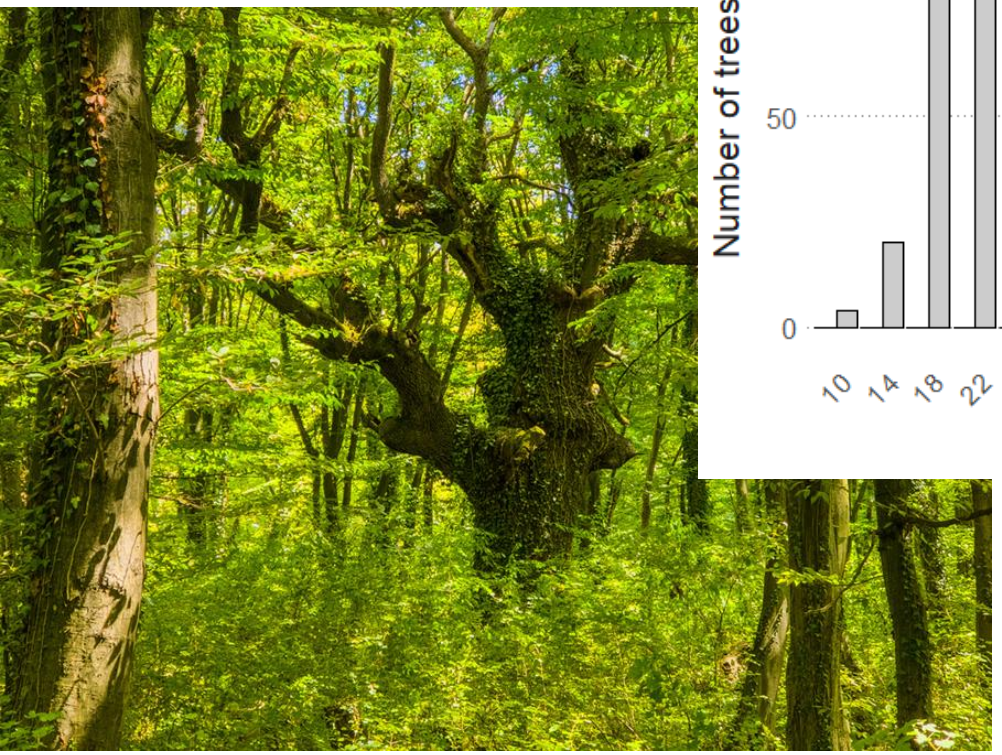


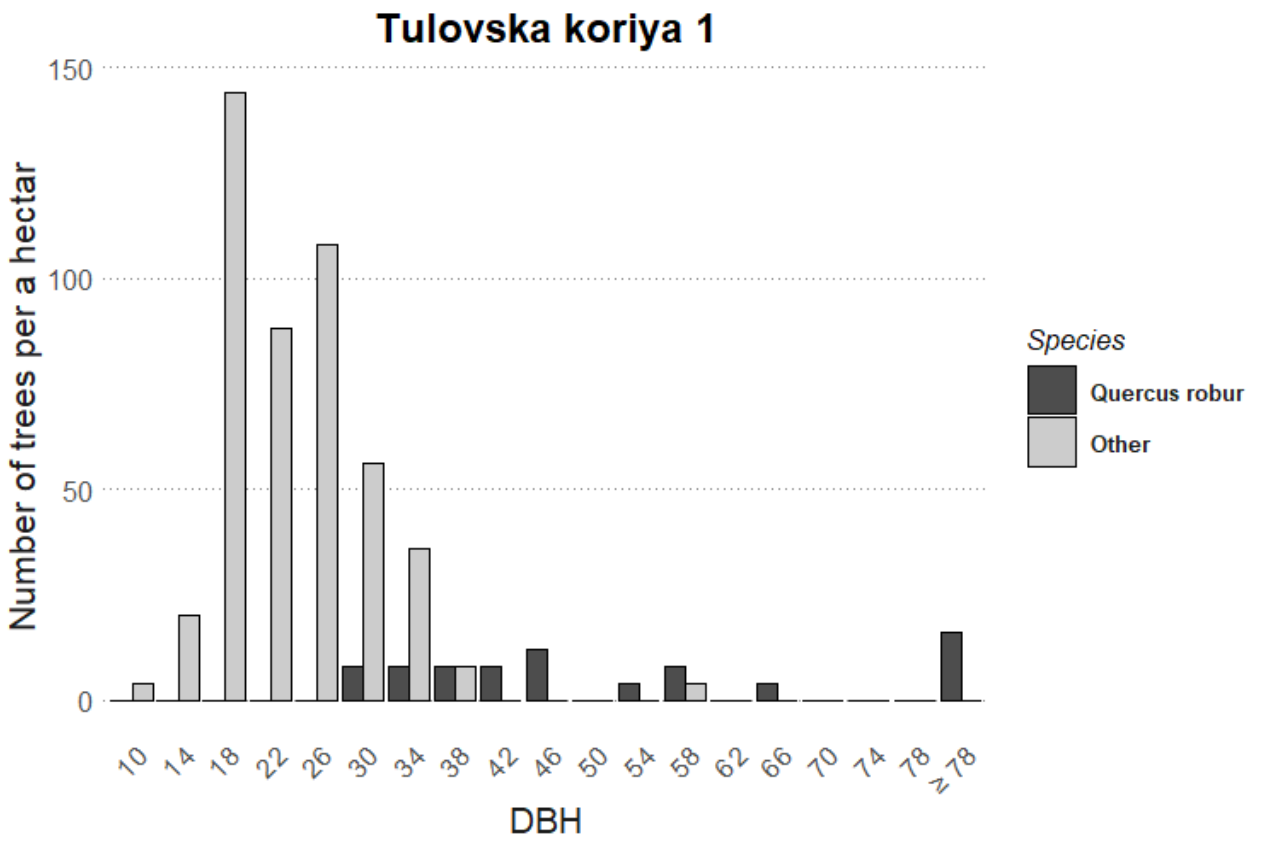


Q. robur:
56 trees ha-1

Other species:
168 trees ha-1
Acer campestre
Acer monspessulanum
Corylus avellana
Crataequs monogyna
Prunus avium sol.
Populus alba sol.

DBH distribution of the trees

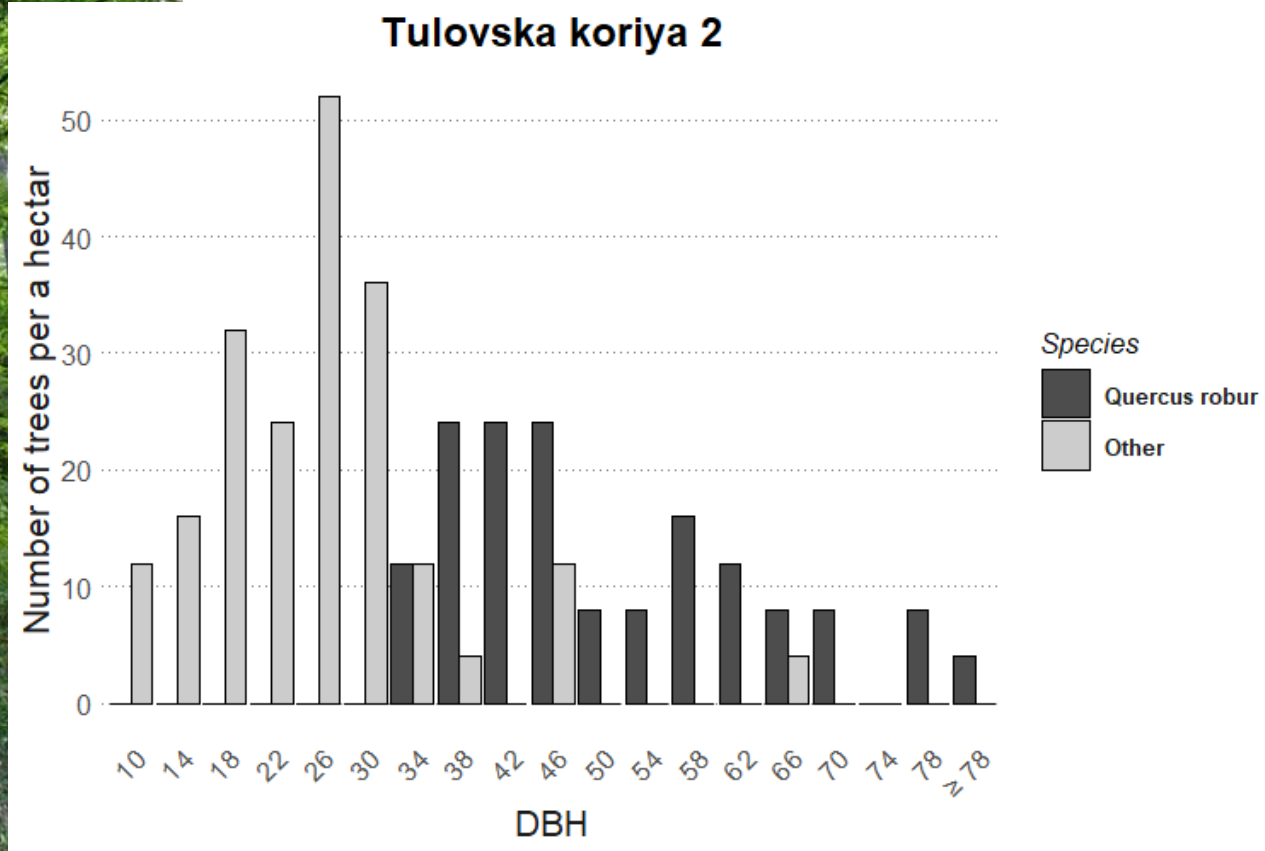




Q. robur:
76 trees ha-1

Other species:
468 trees ha-1
Carpinus betulus
Acer campestre sol.
Ulmus minor sol.
Populus alba sol.

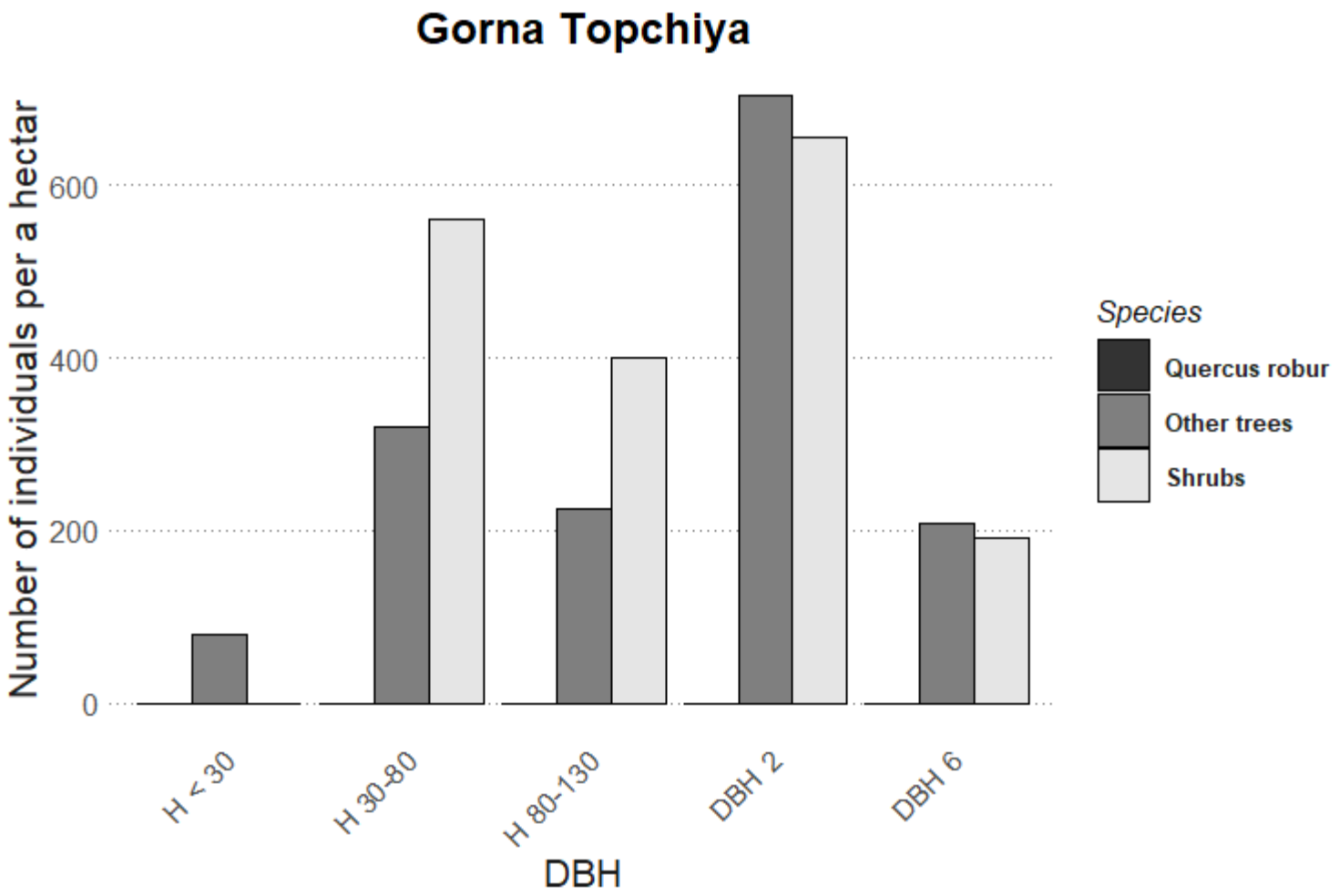
DBH distribution of the trees



Q. robur:
156 trees ha^{-1}

Other species:
204 trees ha^{-1}
Carpinus betulus
Acer campestre sol.
Prunus avium sol.

Regeneration density by size groups

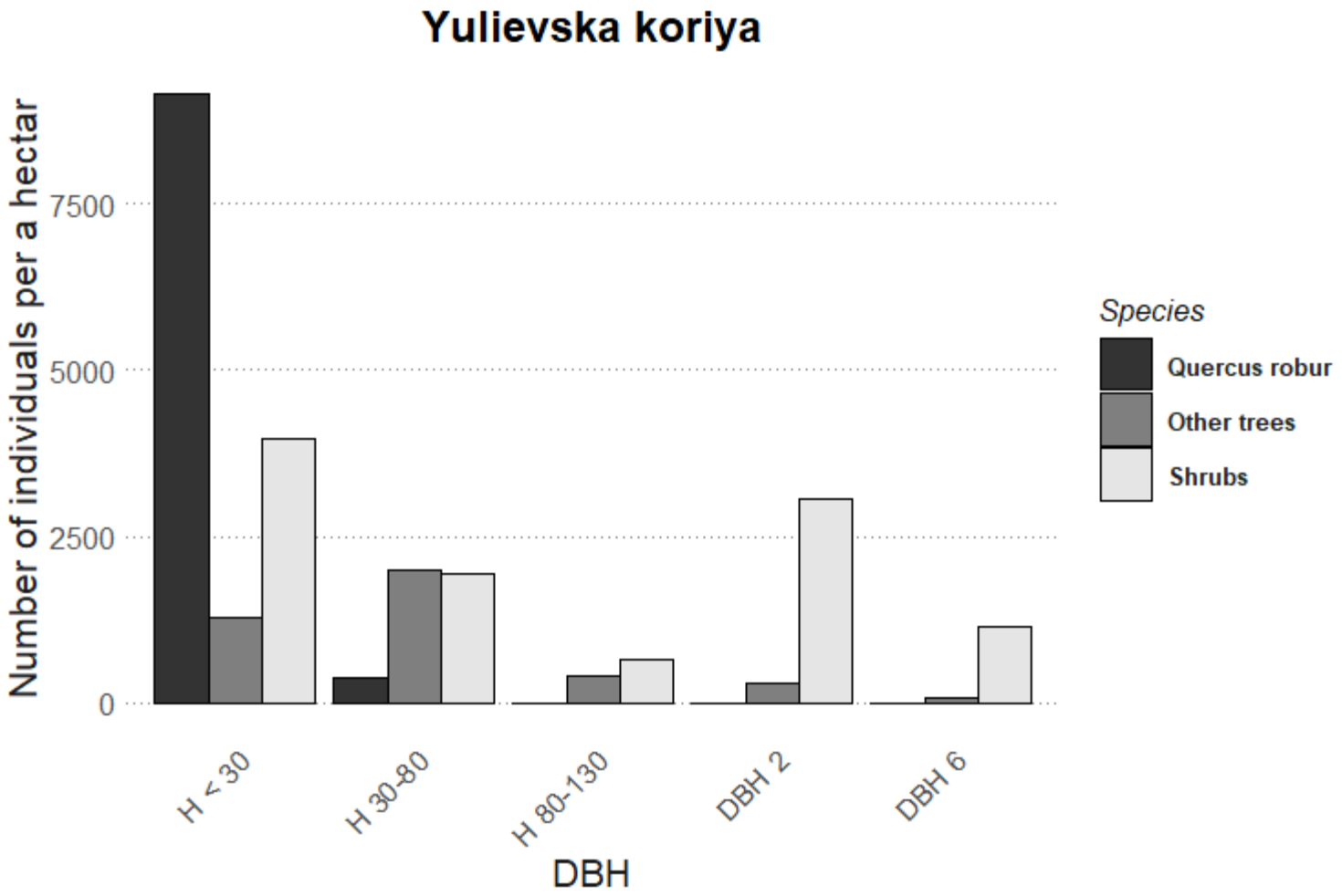


Q. robur
0 ind. ha^{-1}

Other tree species:
1536 ind. ha^{-1}
Ulmus minor
Acer campestre
Fraxinus angustifolia sol.
Prunus cerasifera sol.
Regularly distributed

Shrubs:
1808 ind. ha^{-1}
Cornus sanquinea
Acer Tataricum
Crataequs monogyna
Euonymus europaeus
Ligustrum vulgare
Sambucus nigra
Regularly distributed

Regeneration density by size groups

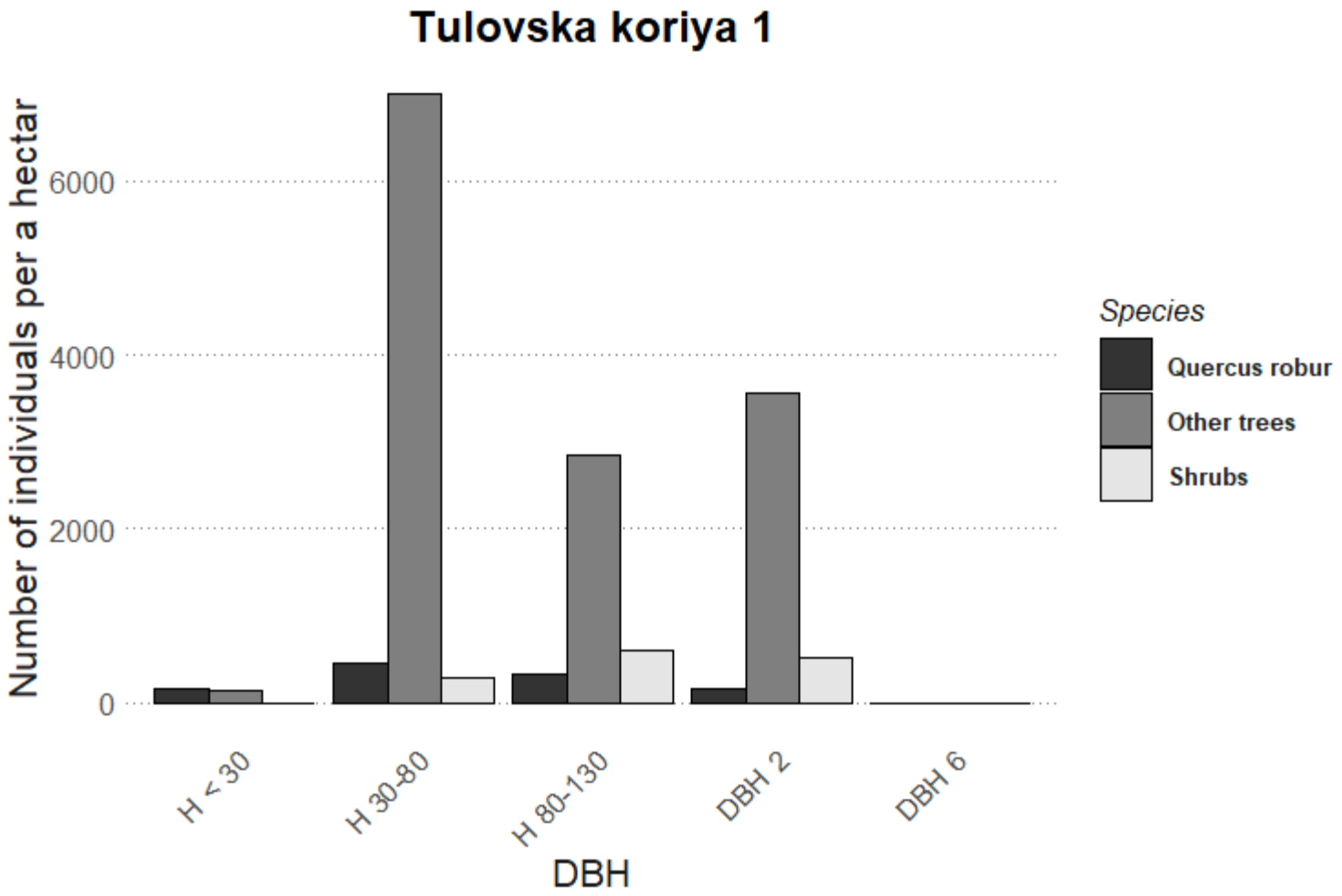


Q. robur
14900 ind. ha^{-1}
Regularly distributed
(mostly aged 2 years)

Other tree species:
6500 ind. ha^{-1}
Acer campestre
Fraxinus angustifolia
Ulmus minor
Pyrus pyraster sol.
Malus sylvestris sol.
Prunus cerasifera sol.
Regularly distributed

Shrubs:
16575 ind. ha^{-1}
Corylus avellana
Acer Tataricum
Crataequs monogyna
Euonymus europaeus
Ligustrum vulgare
Cornus sanquinea
Rosa canina
Regularly distributed

Regeneration density by size groups

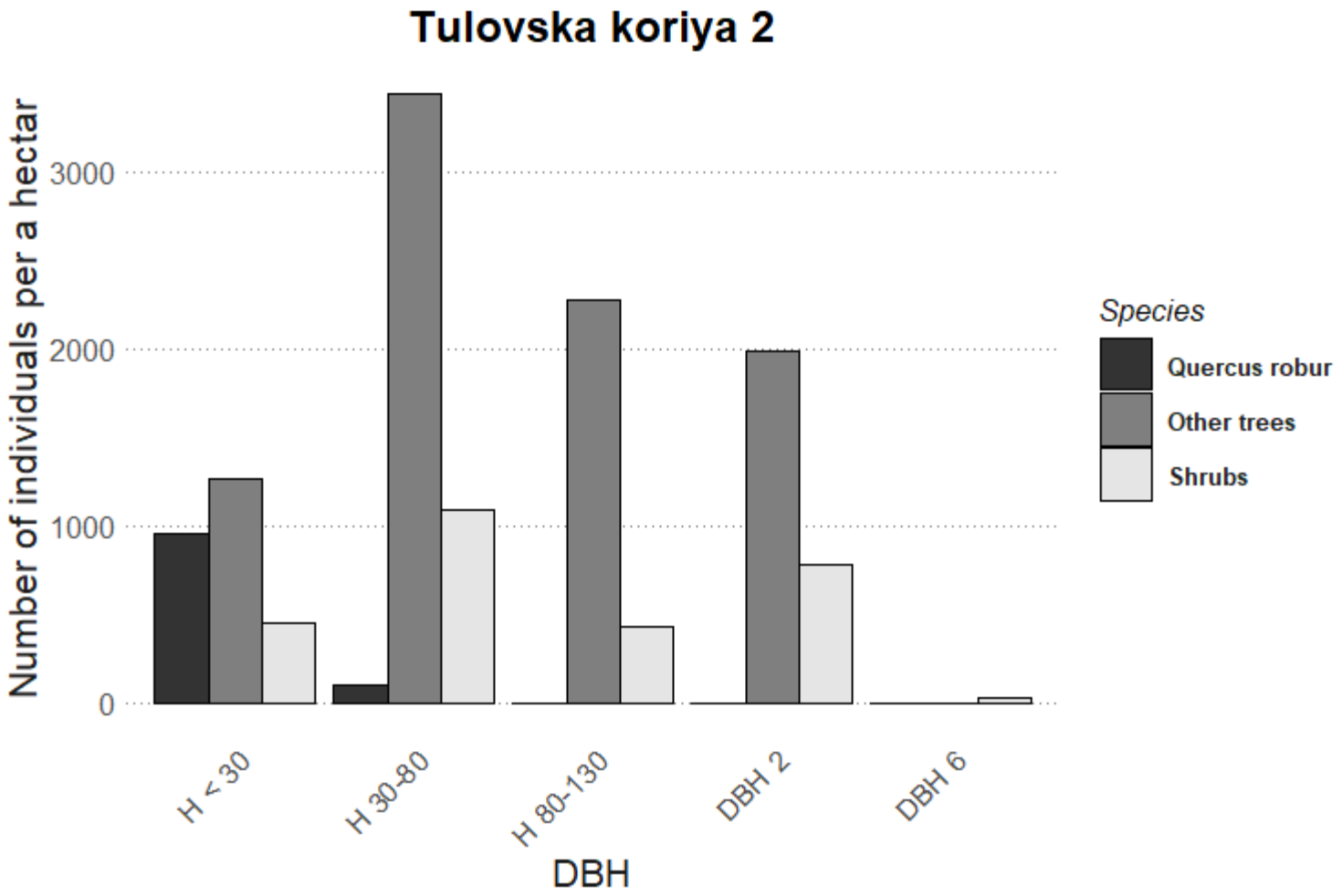


Q. robur
1104 ind. ha^{-1}
Found in 4 plots only

Other tree species:
3808 ind. ha^{-1}
Carpinus betulus
Acer campestre
Ulmus minor
Prunus avium sol.
Prunus cerasifera sol.
Tilia platyphyllos sol.
Regularly distributed

Shrubs:
10960 ind. ha^{-1}
Corylus avellana
Acer Tataricum
Crataequs monogyna
Euonymus europaeus
Ligustrum vulgare
Cornus sanquinea
Rosa canina
Regularly distributed

Regeneration density by size groups

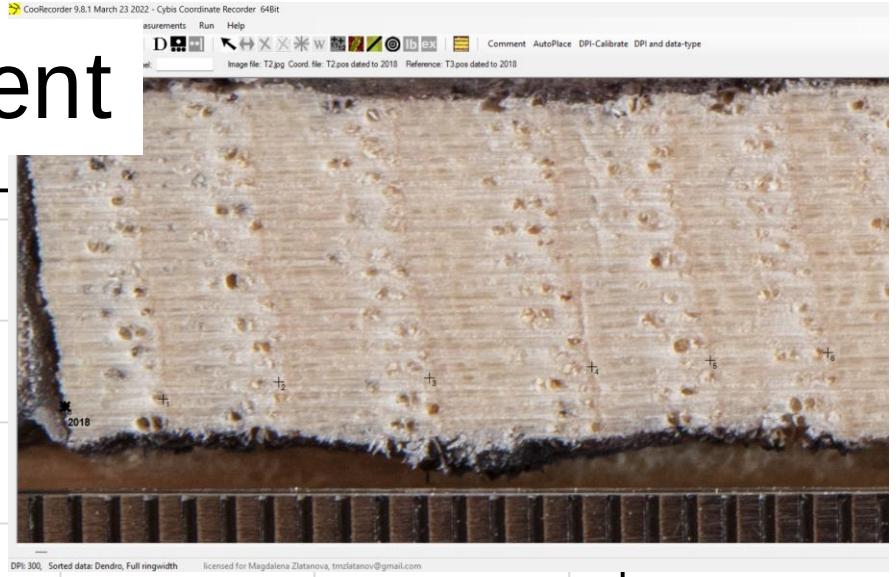


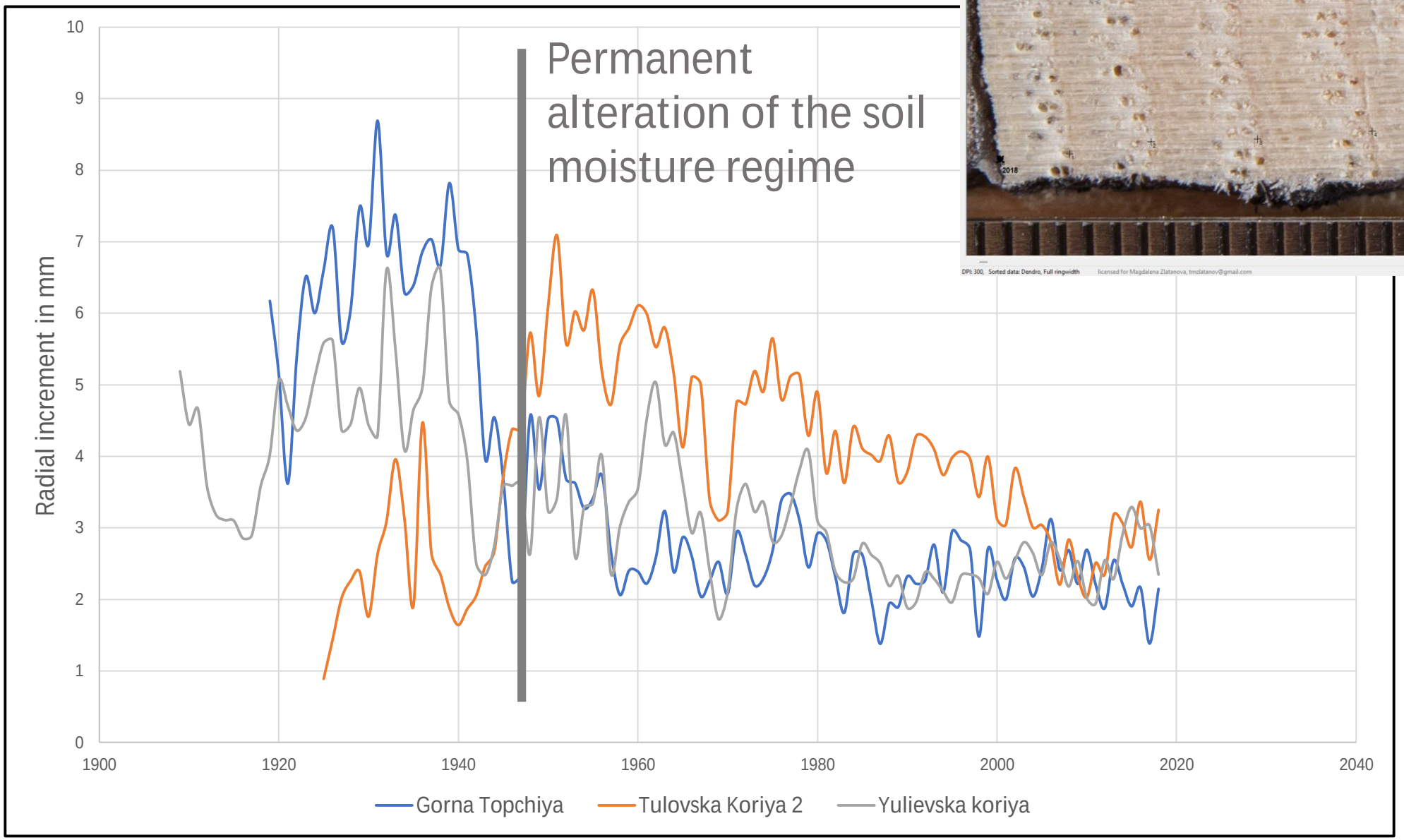
Q. robur
1056 ind. ha^{-1}
Found in 6 plots

Other tree species:
8960 ind. ha^{-1}
Carpinus betulus
Acer campestre
Prunus avium sol.
Ulmus minor sol.
Prunus cerasifera sol.
Regularly distributed

Shrubs:
2784 ind. ha^{-1}
Corylus avellana
Cornus sanquinea
Acer Tataricum
Euonymus europaeus
Ligustrum vulgare
Prunus spinosa
Crataequs monogyna
Regularly distributed

Radial growth increment





Main factors impeding the pedunculate oak regeneration success in the sample plots and their influence

Factors impeding the pedunculate oak regeneration success	Influence		
	Strong	Moderate	Slight
Permanent alteration of the soil moisture regime	GT (studied area), TK1, TK2	YK	–
Lack of adequate number of mature pedunculate oak trees, often in combination with oak seeds collecting and pasture	TK 1	GT, YK	TK 2
Presence of non-oak competing vegetation	GT (studied area), TK1, TK2	YK	–
Lack of targeted silviculture	All	–	–

The future?

Thank you for the attention