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Removal of logging residues on the clear-cut areas: a way to economic profit or to soil degradation ??

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FORESTS´ FUTURE
Czech Republic 2022

Management of logging residues (LR)

- Piling up, Raking to walls
- Burning
- Chipping (+ spreading out/ mixing with soil)
- Removal (heat and energy production)

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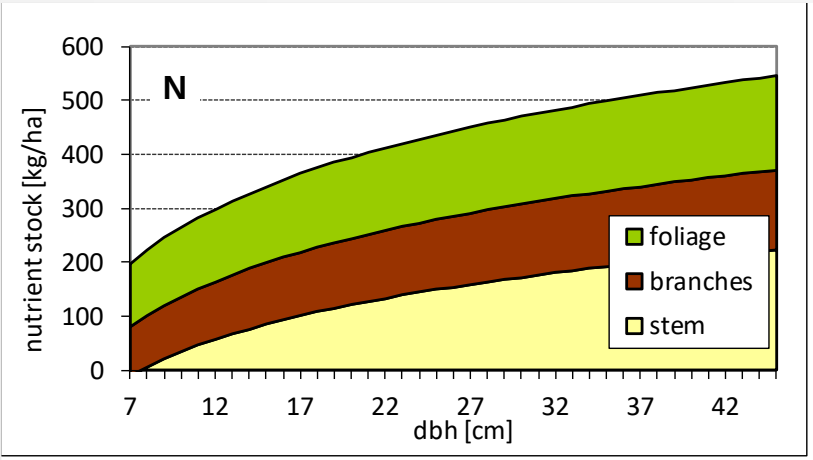
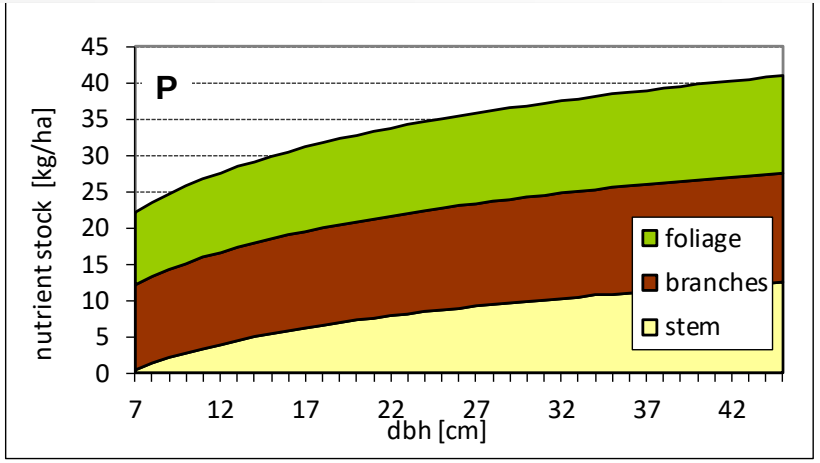
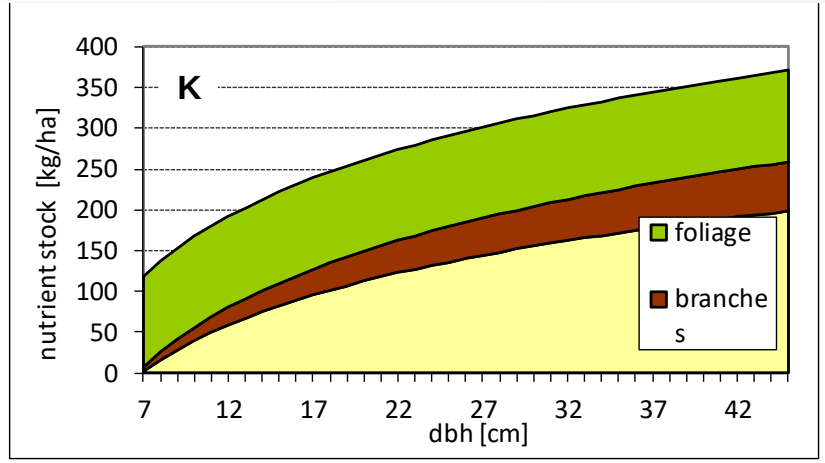
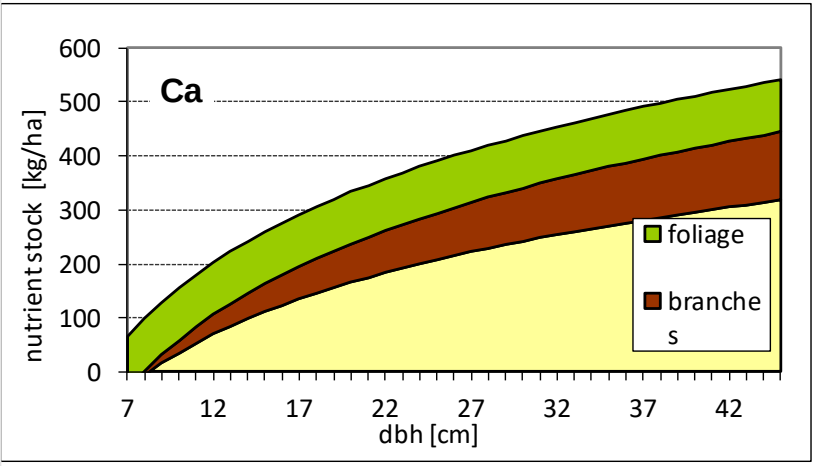
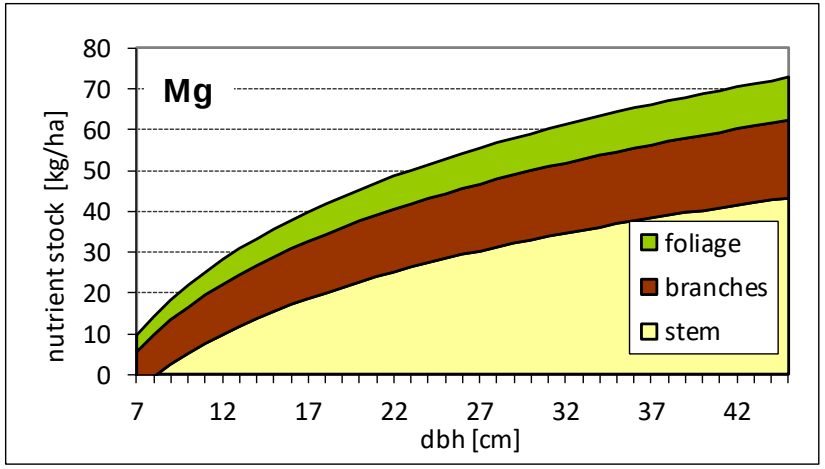
LR represent only 8 – 15 % of the aboveground biomass but:











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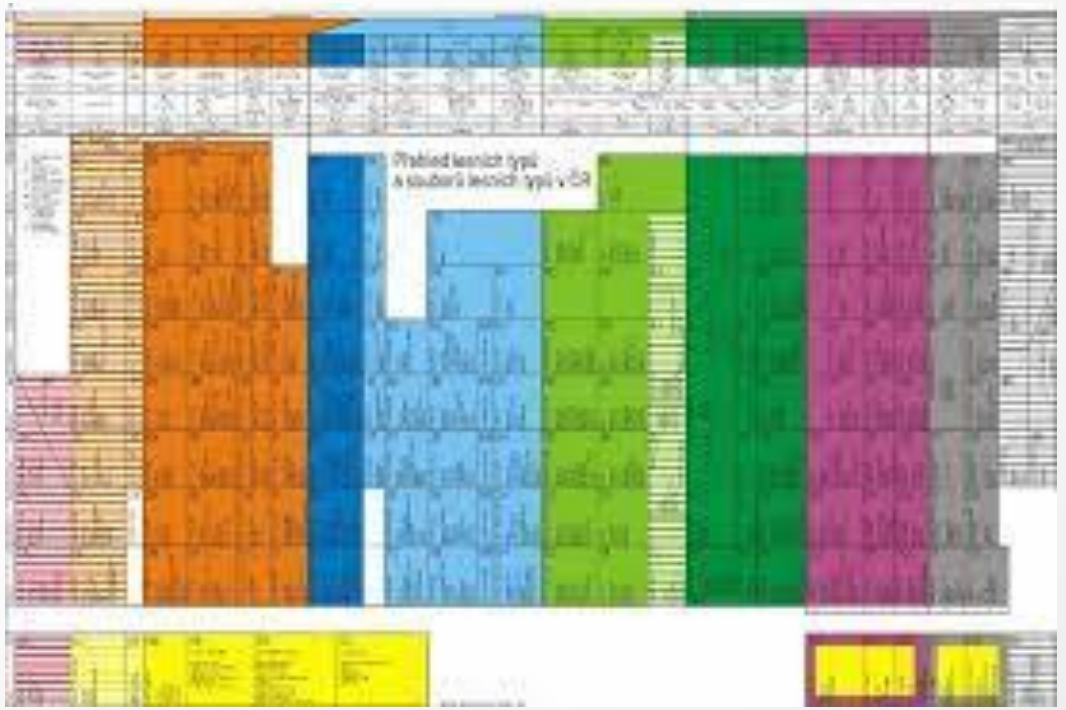
Guide for use of LR (ÚHÚL, 2009):

29,1 % - risk of using LR acceptable

24,5 % - risk of using LR conditionally acceptable

46,4 % - risk of using LR non acceptable



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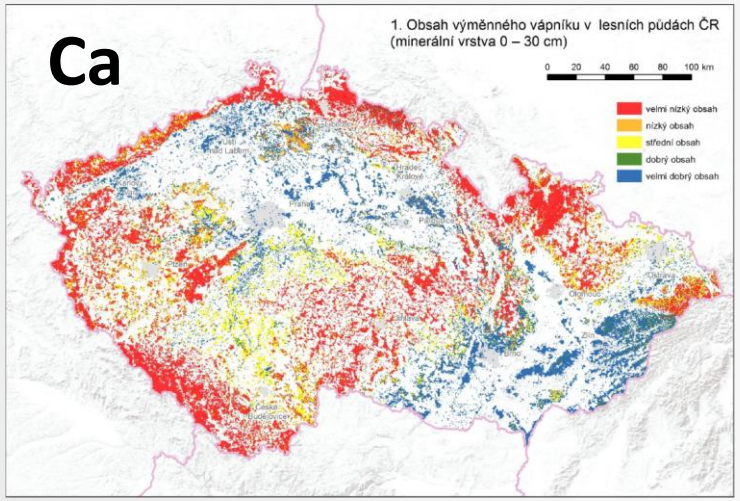
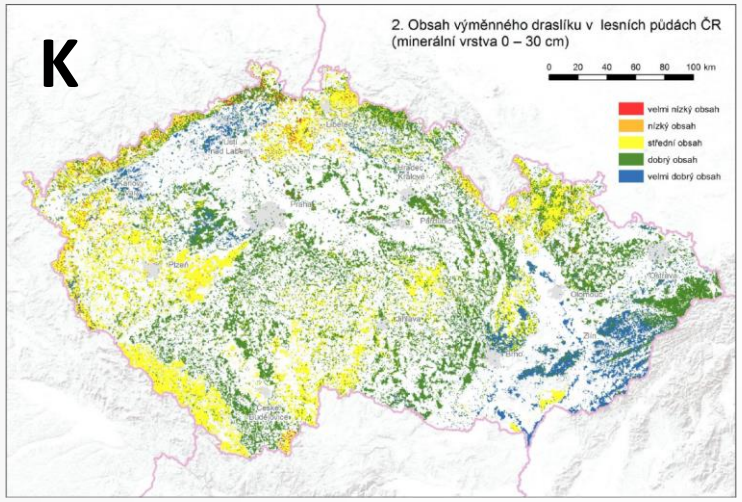
Nutrient content in forest soil – upper mineral layer 0-30 cm

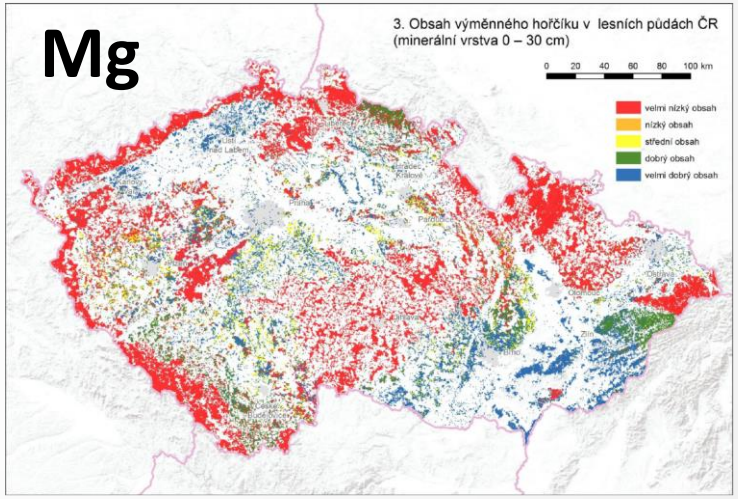
Ca



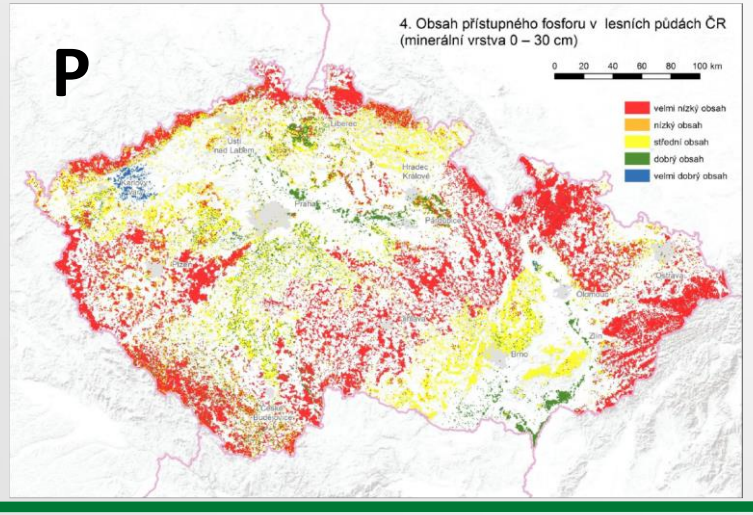
K



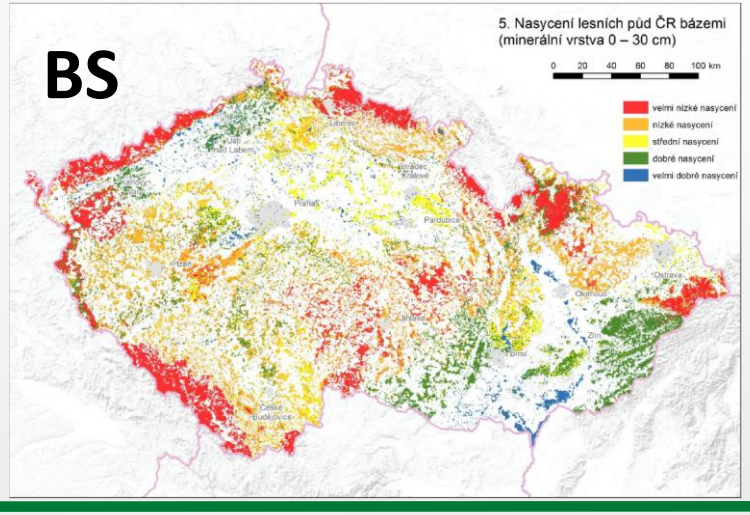
Mg



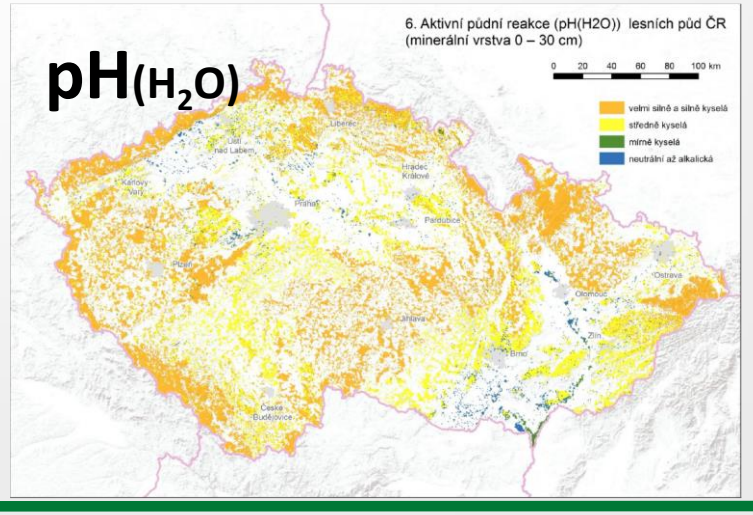
P



BS



$pH_{(H_2O)}$



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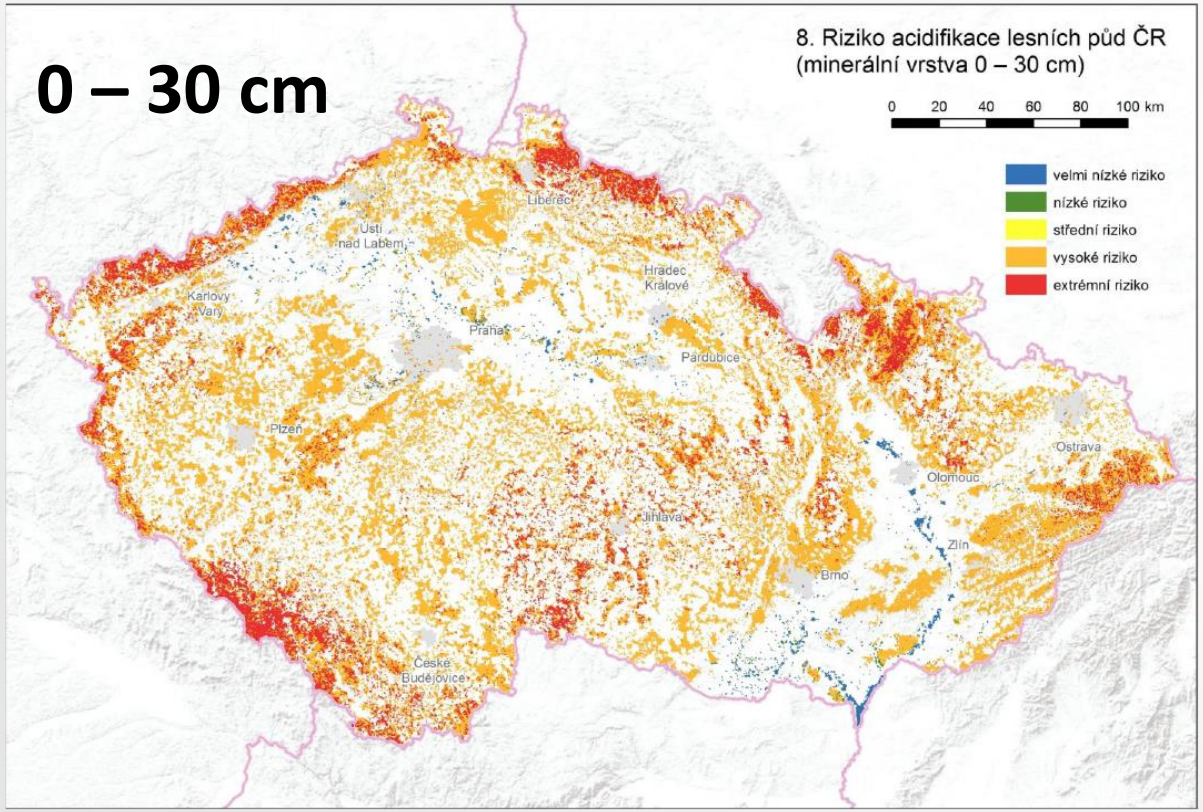
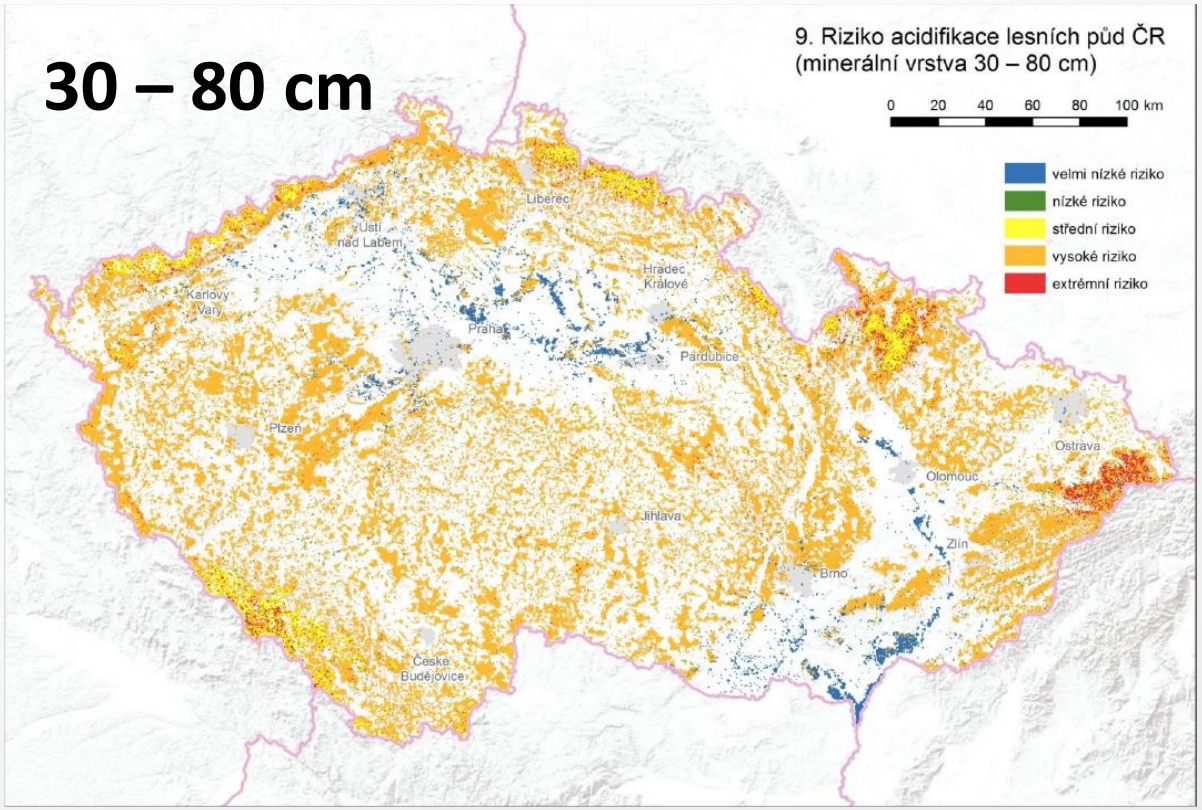
Acidity risk in forest soils





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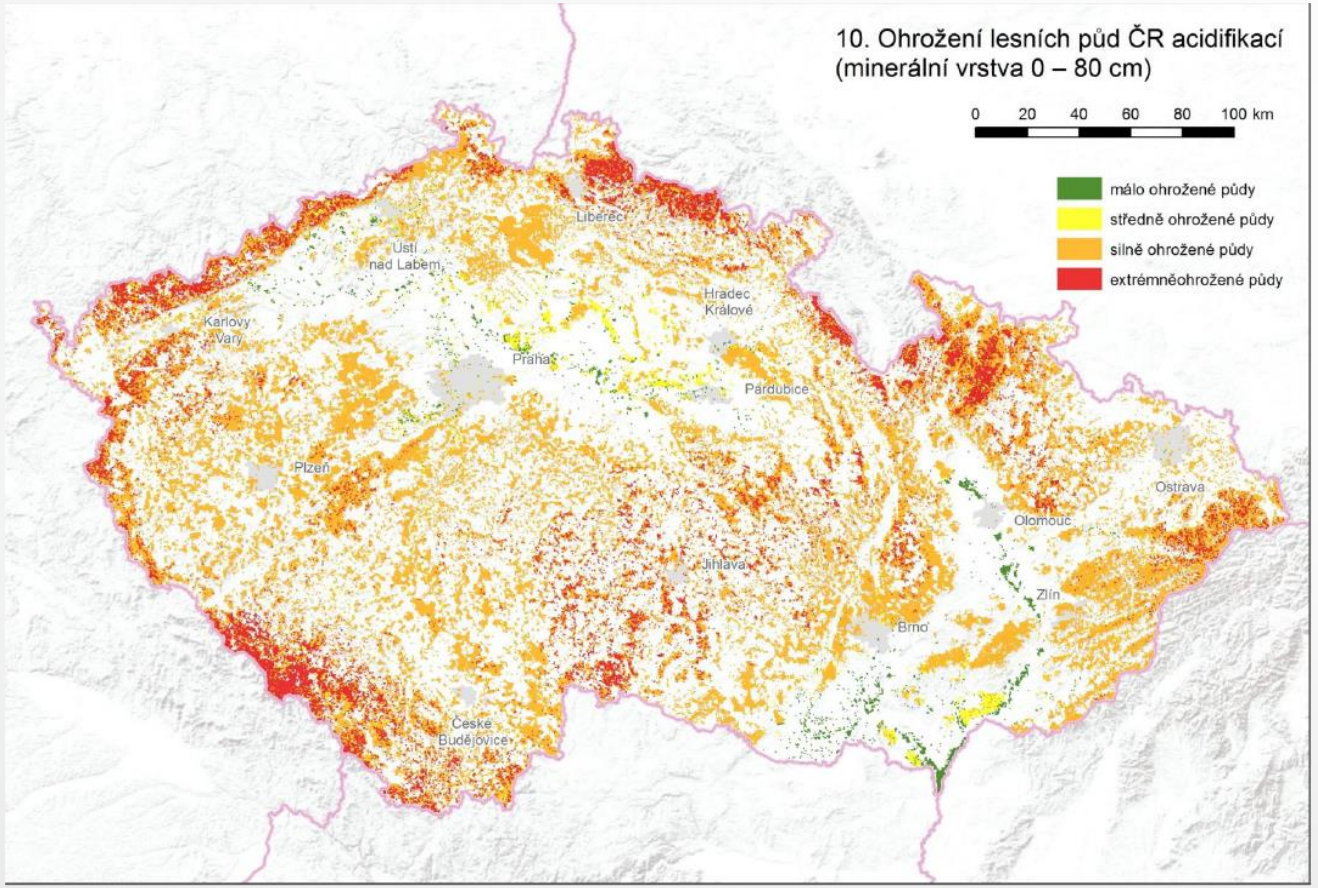
Risk of acidification and nutrient degradation (0-80 cm)



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Soil properties according to the „Target Management Units“

	Pine/ Floodplain Forest	Lowlands	Specific sites	Uplands	Highlands	Mountains	Specific sites II
Exposed sites		TMU 21	TMU 31	TMU 41	TMU 51	TMU 71	TMU 01
Acidic sites	TMU 13	TMU 23		TMU 43	TMU 53	TMU 73	TMU 02
Euthropic sites		TMU 25	TMU 35	TMU 45	TMU 55	TMU 75	TMU 03
Gleyic sites		TMU 27		TMU 47	TMU 57	TMU 77	
Waterlogged sites	TMU 19	TMU 29	TMU 39		TMU 59	TMU 79	

acceptable risk for LR removal (29,1 %)

potentially acceptable risk for LR removal (24,5 %)

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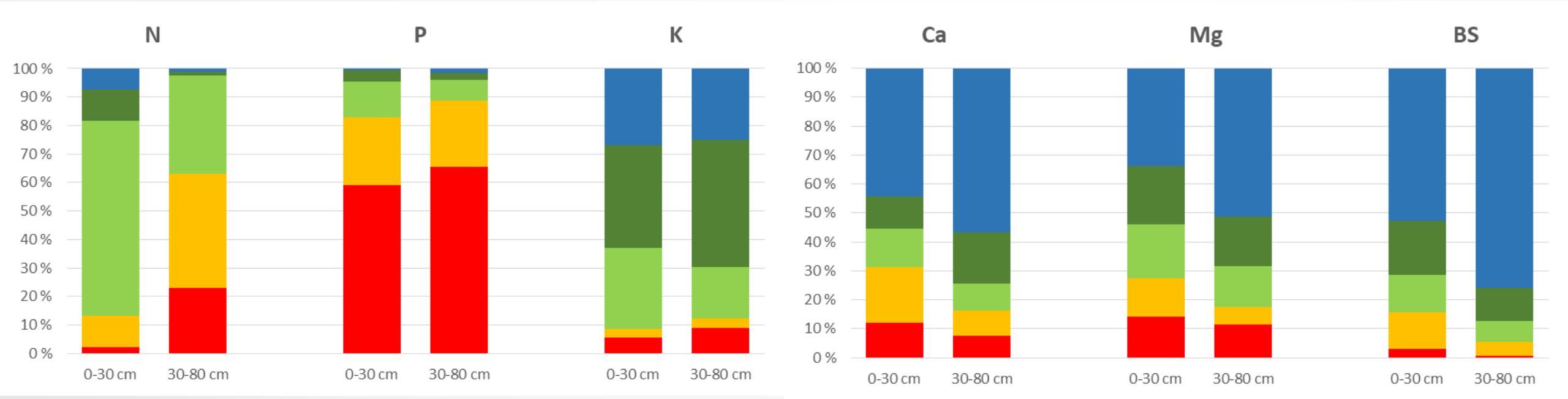
TMU 25 – Eutrophic sites in lowland areas (140 470 ha)



Nutrient content: very low | low | medium | good | very good

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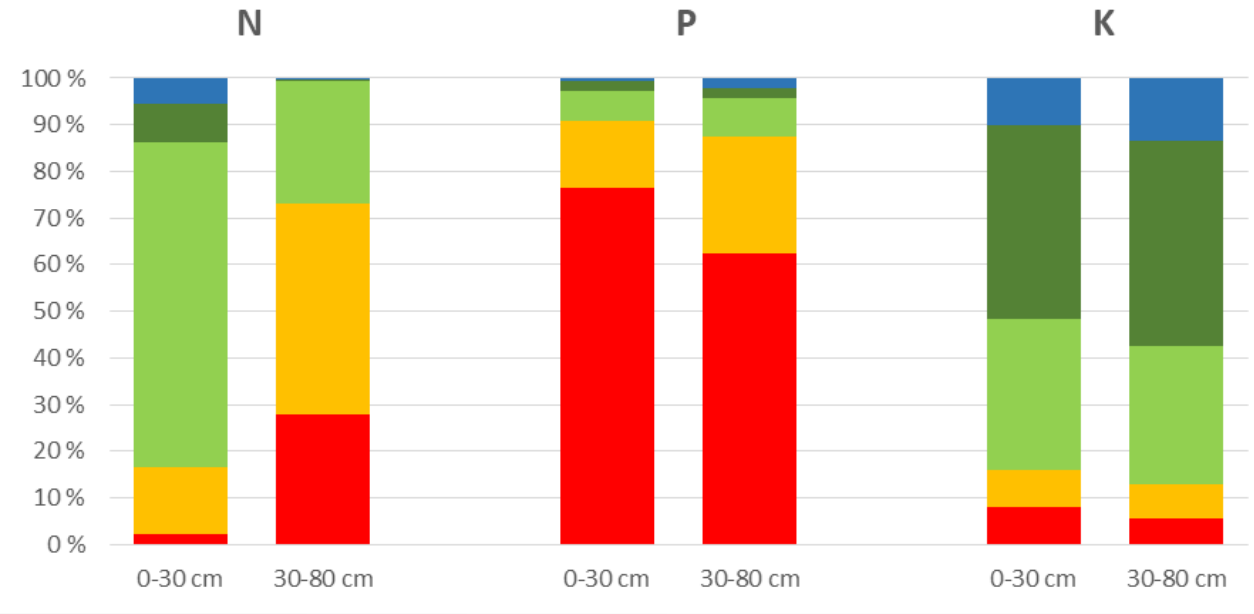
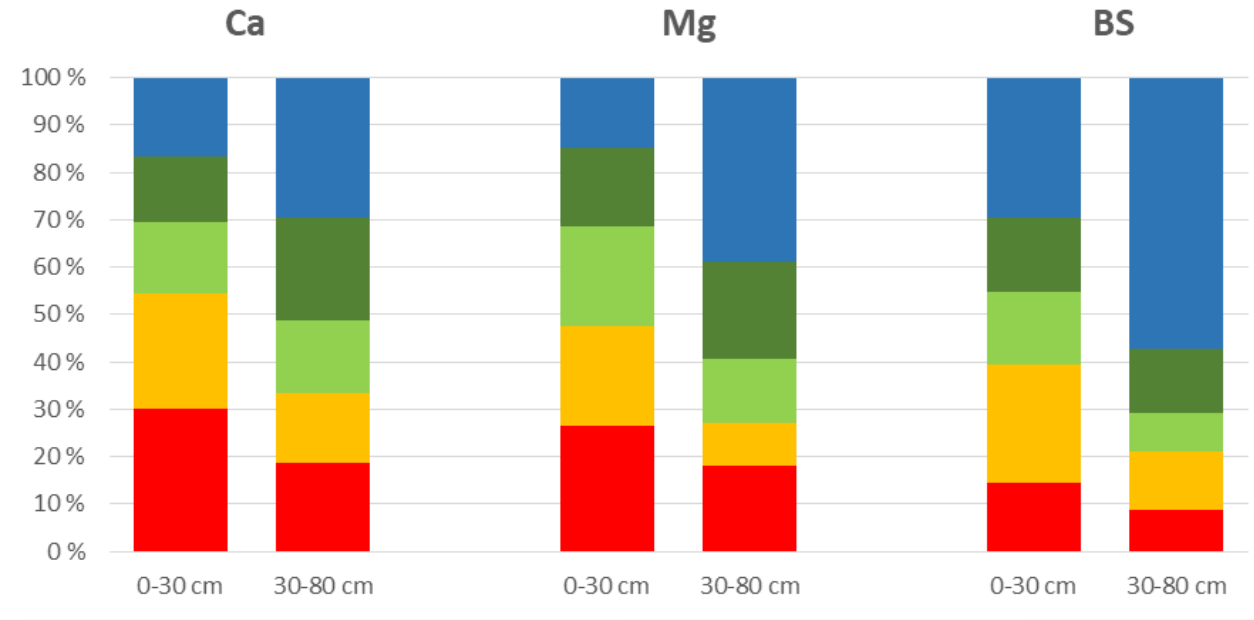
TMU 45 – Eutrophic sites in upland areas (523 886 ha)





Nutrient content: very low | low | medium | good | very good

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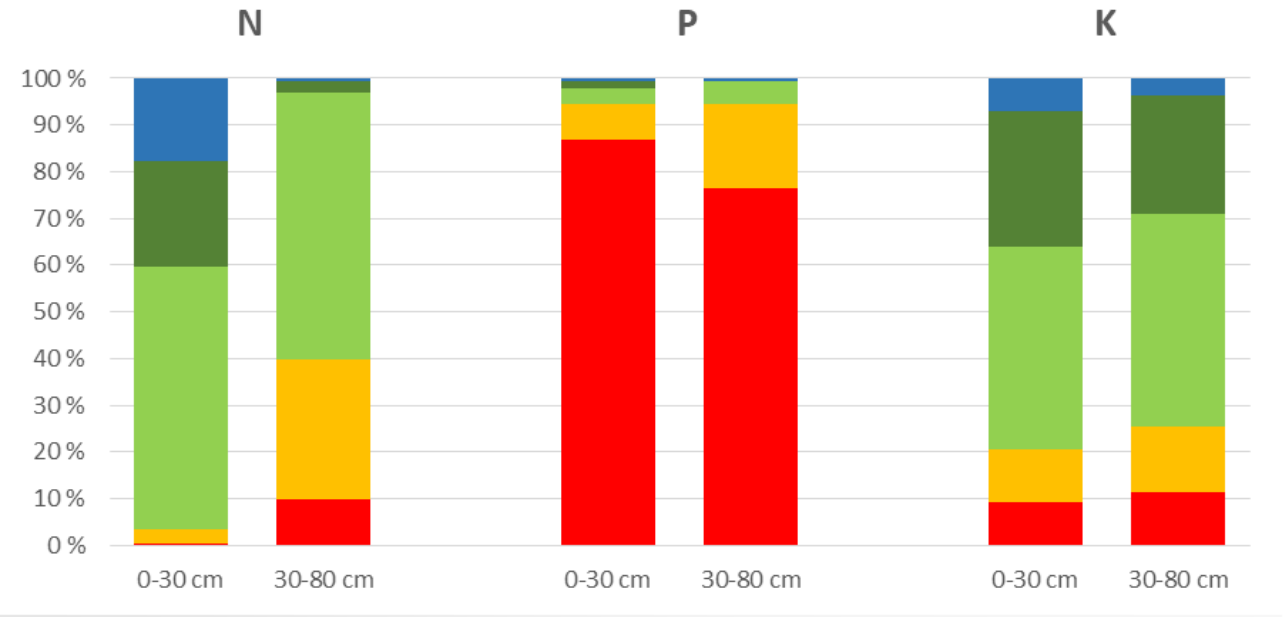
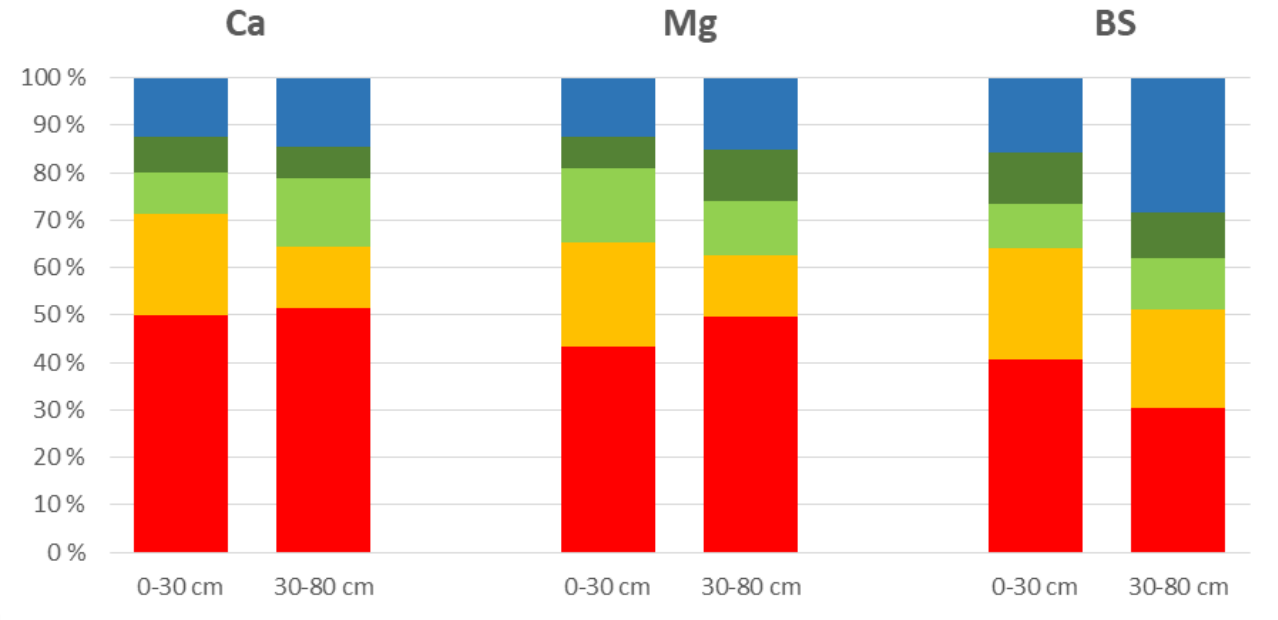
TMU 55 – Eutrophic sites in highlands (280 631 ha)





Nutrient content: very low | low | medium | good | very good

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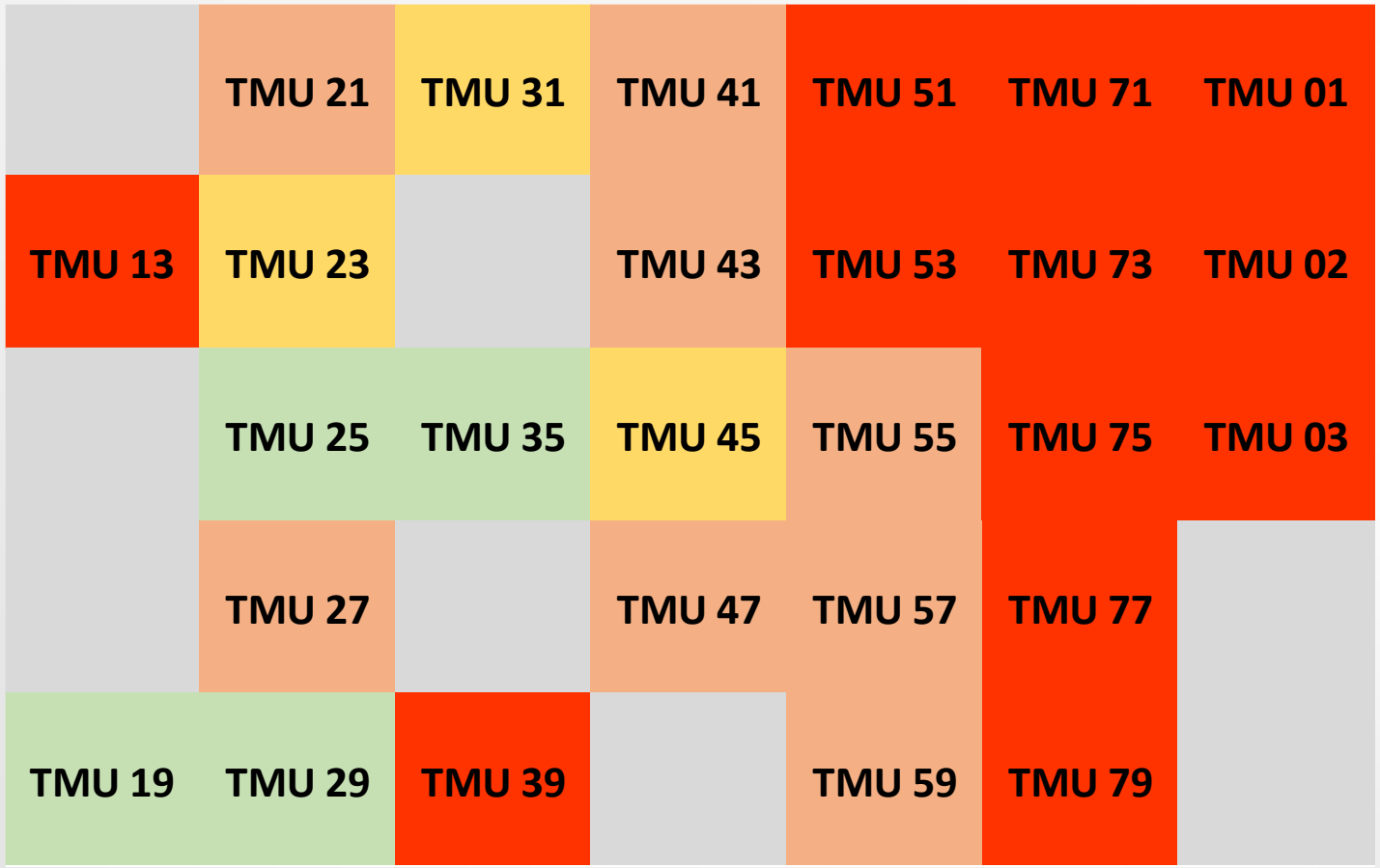
Results of evaluation:



Use of LR:

slight risk (7%)

medium risk (25 %)

high risk

undesirable

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Recommendation to forest owners

- For use of LR economic, technological and ecological criteria should be considered
- Use LR preferably without the foliage (leaves or needles)
- In any case, part of LR should stay in the forest (as it is or chopped)
- Get some soil data for your site (nutrient content) before planning LR management
- In case of LR removal on sites with higher risk you consider the need of future improving of nutrition by fertilizing or liming

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Recommendation for (state) forest administration

- Support forest owners with LR chipping and leaving on the site
- Support expert consulting (forest soil properties, fertilizing and liming projects)
- Regular survey of soil properties and forest nutrition on the national scale
- Legislative and rules for use of wooden ash as fertilizer is needed
- Support fertilizing and liming of forest soils in justified cases

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Thank you for your attention

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