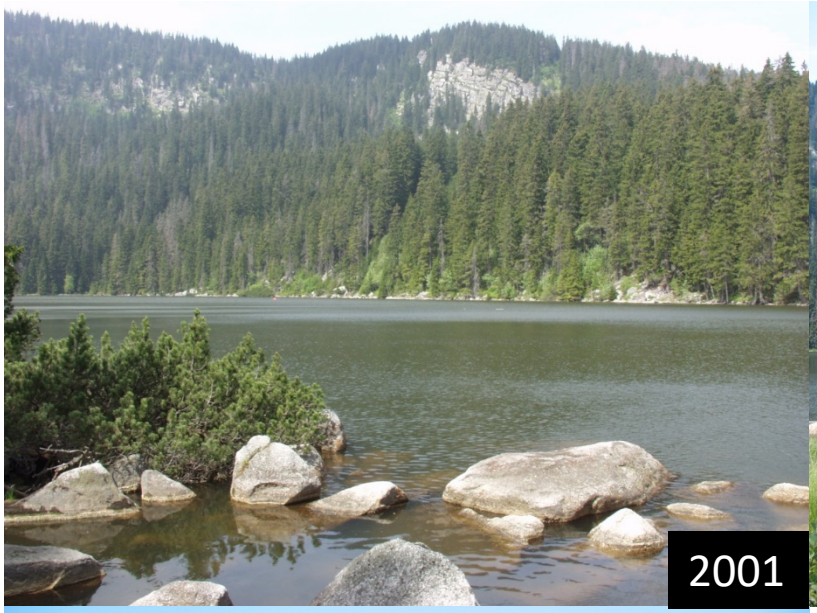
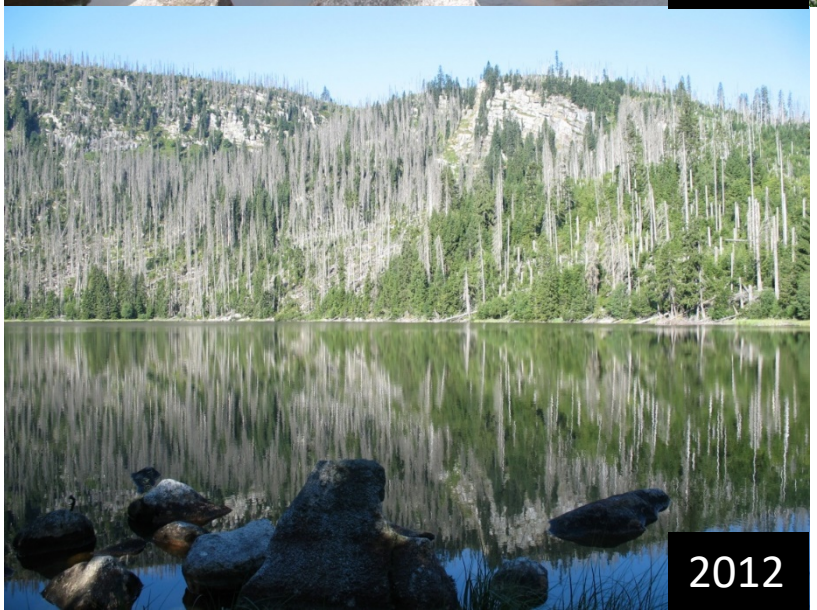
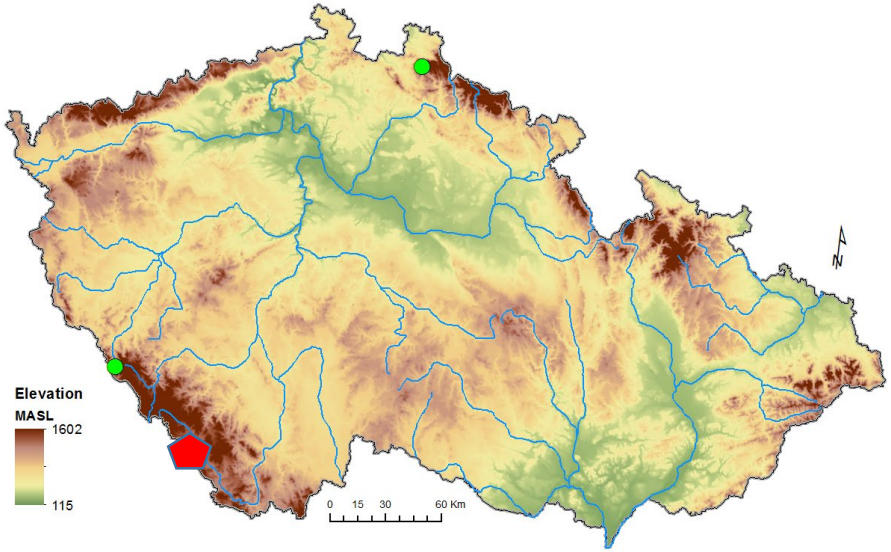
The role of forest (no)management in soil and water recovery

Forest disturbance

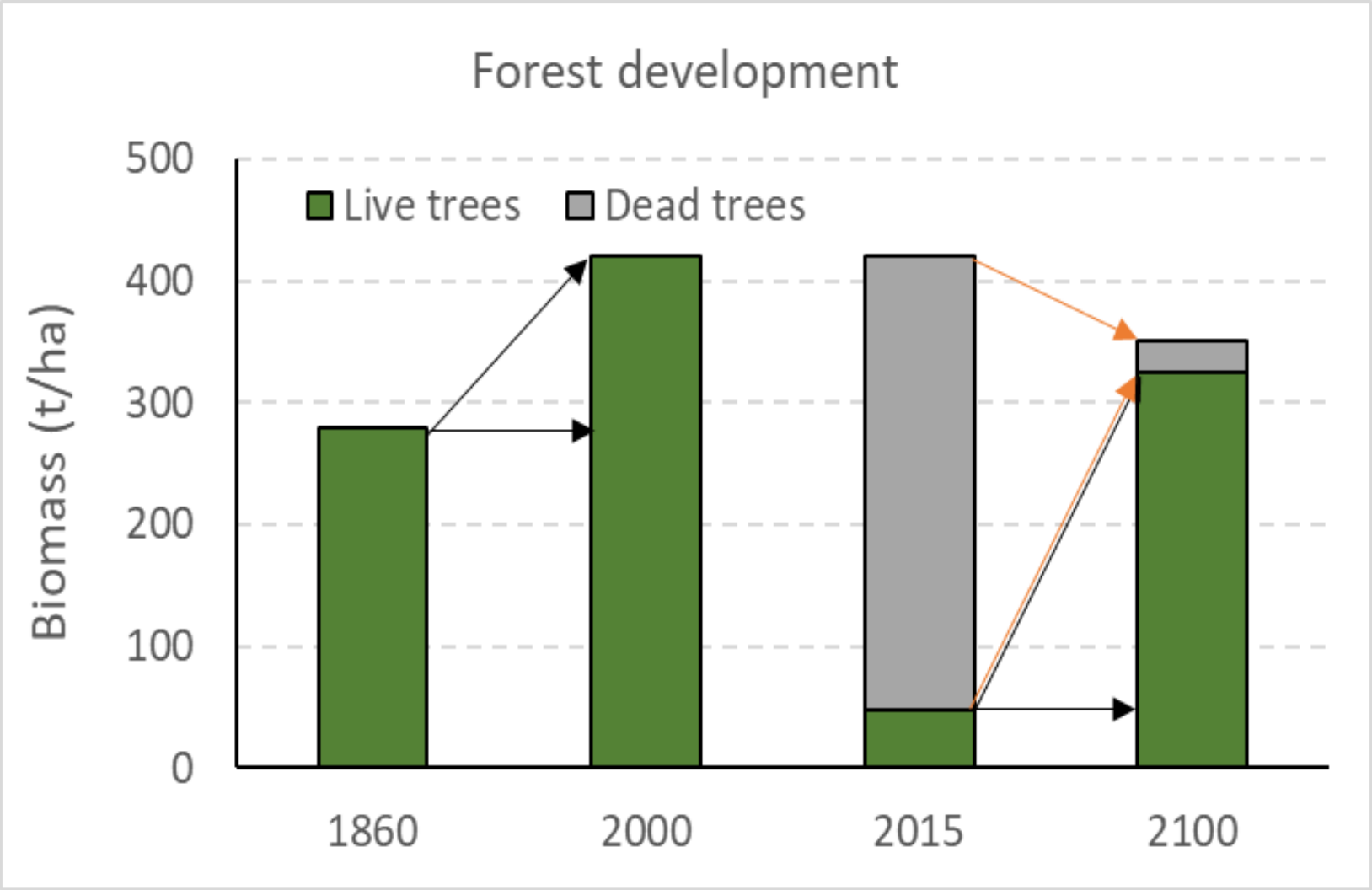
Plešné lake, Bohemian Forest National park



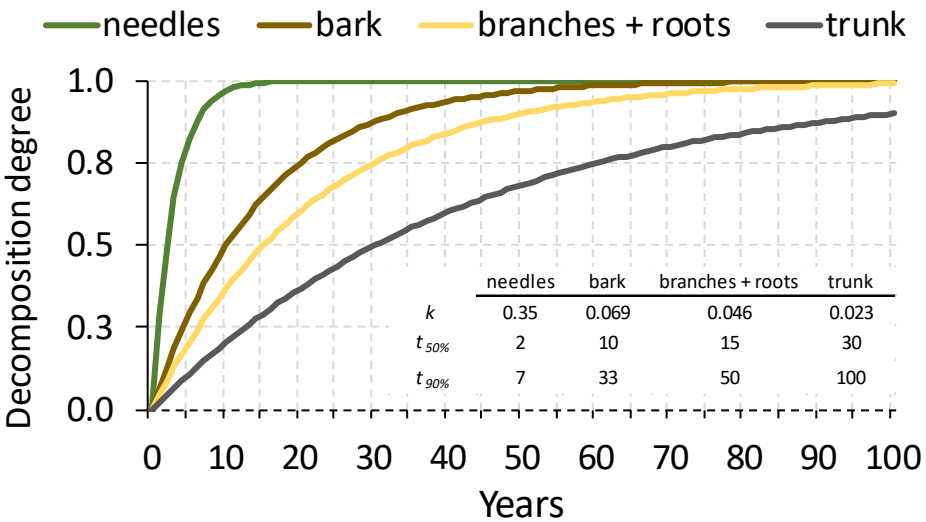




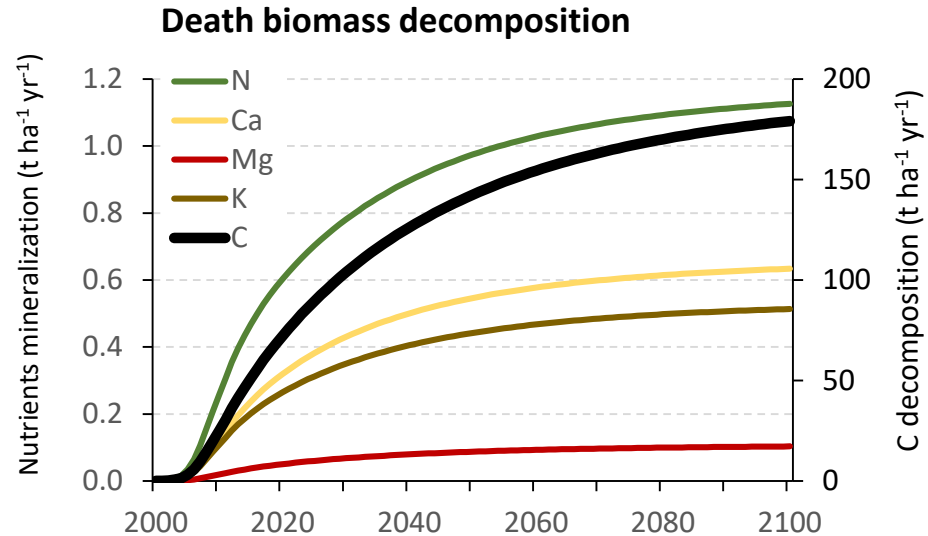
- Forest disturbance by bark beetle (Ips typhographus)

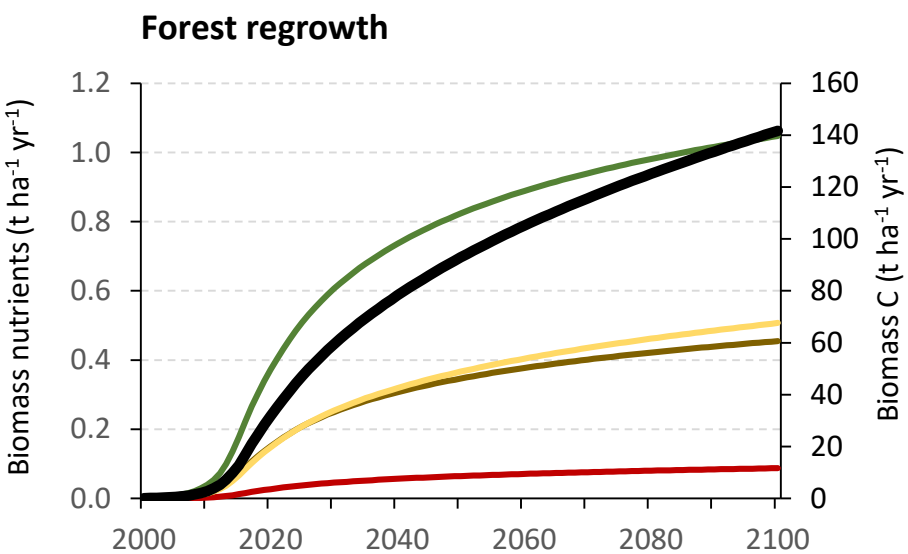


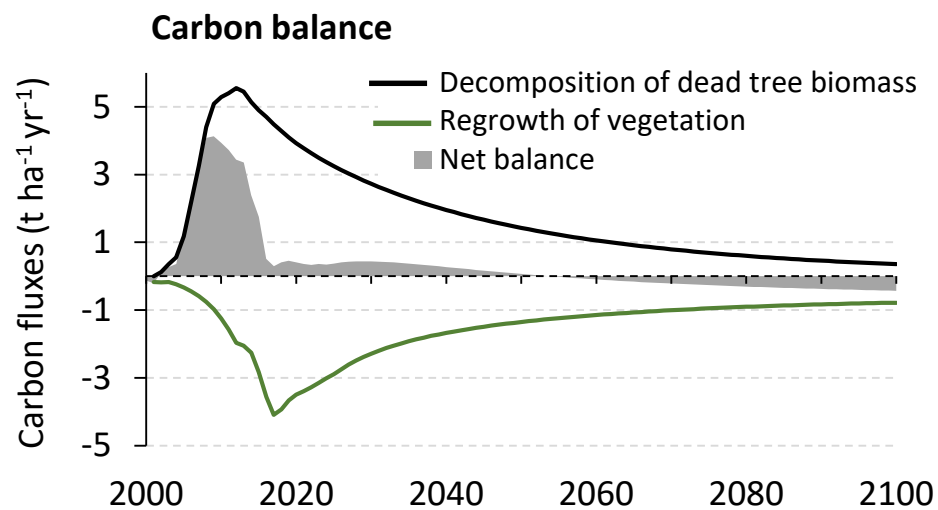
2000-2100



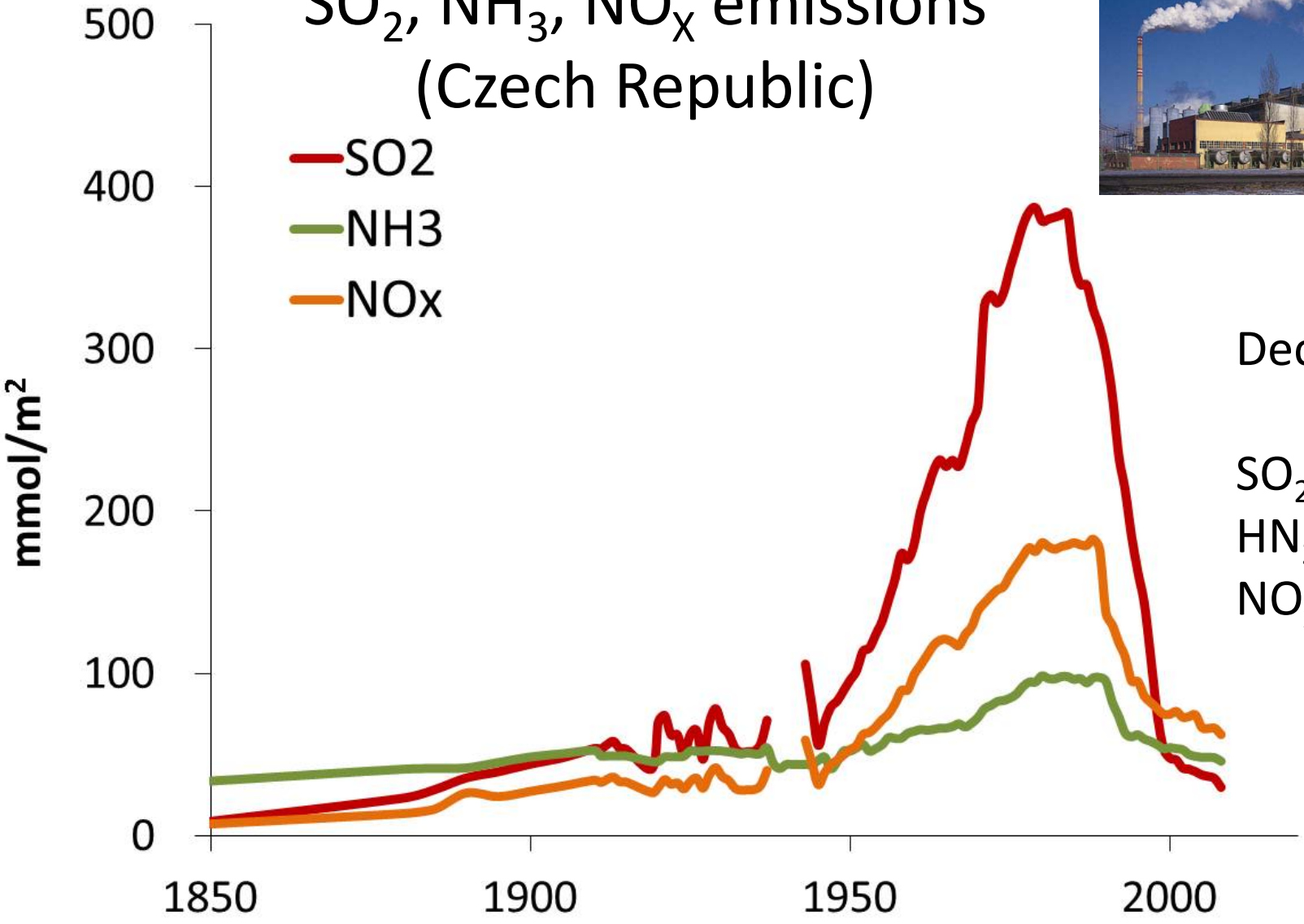
	needles	bark	branches + roots	trunk
k	0.35	0.069	0.046	0.023
$t_{50\%}$	2	10	15	30
$t_{90\%}$	7	33	50	100







SO_2, NH_3, NO_X emissions (Czech Republic)

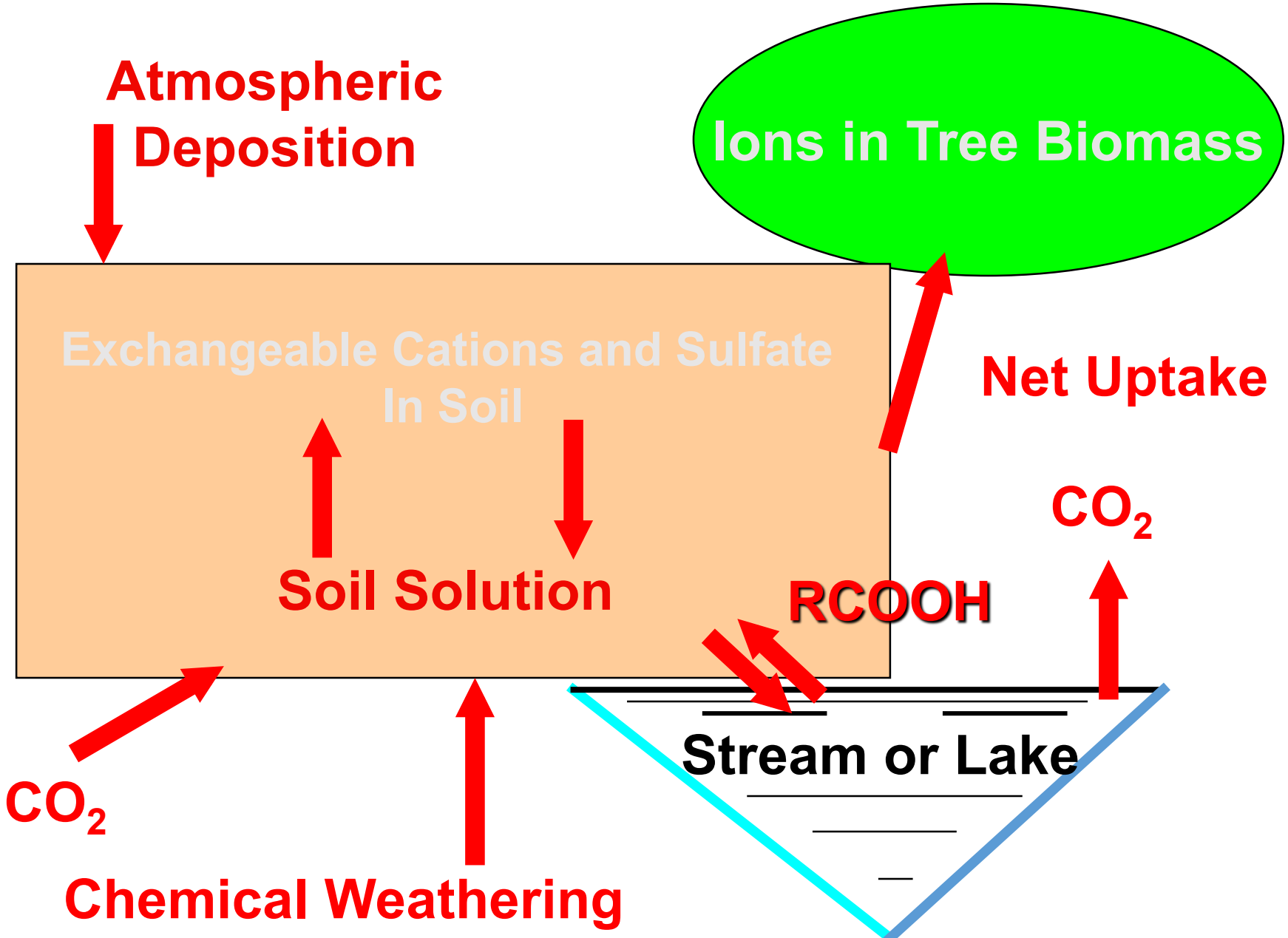


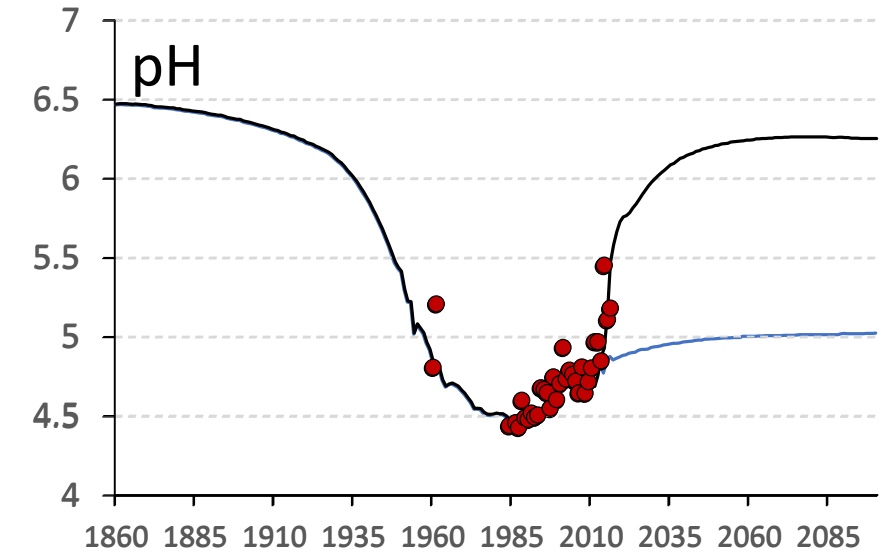
Decline by:

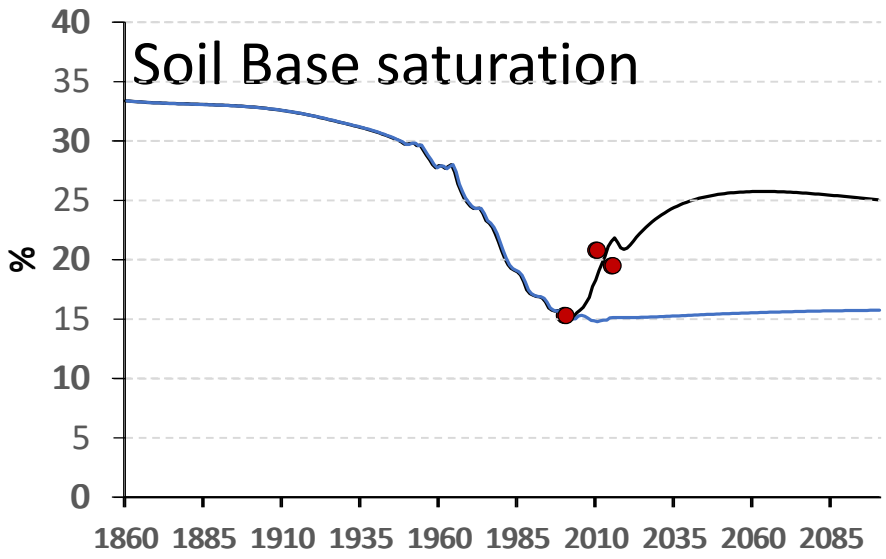
SO_2 – 90%
HN_3 – 50%
NO_x – 60%

(Kopáček et al. 2012. ***Atmospheric Environment*** 50)

Schematic View of the MAGIC Model







No disturbance
(MAGIC Model)

Forest Disturbance
(MAGIC model)

Measured annuall data

Conclusions

- Natural forest disturbance (no intervention, no logging or biomass removal) – endmember of „management“
- Biomass decomposition increased significantly soil pools of Ca, Mg and K in soils within 10 years
- Result: significantly enhanced recovery from acidification

Forest management is very important for soil and water status and recovery