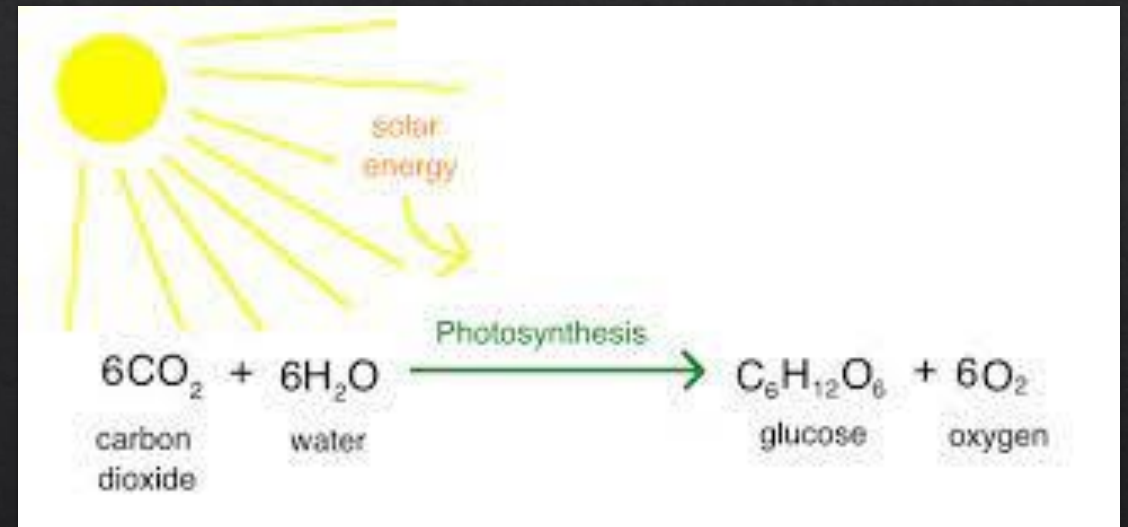
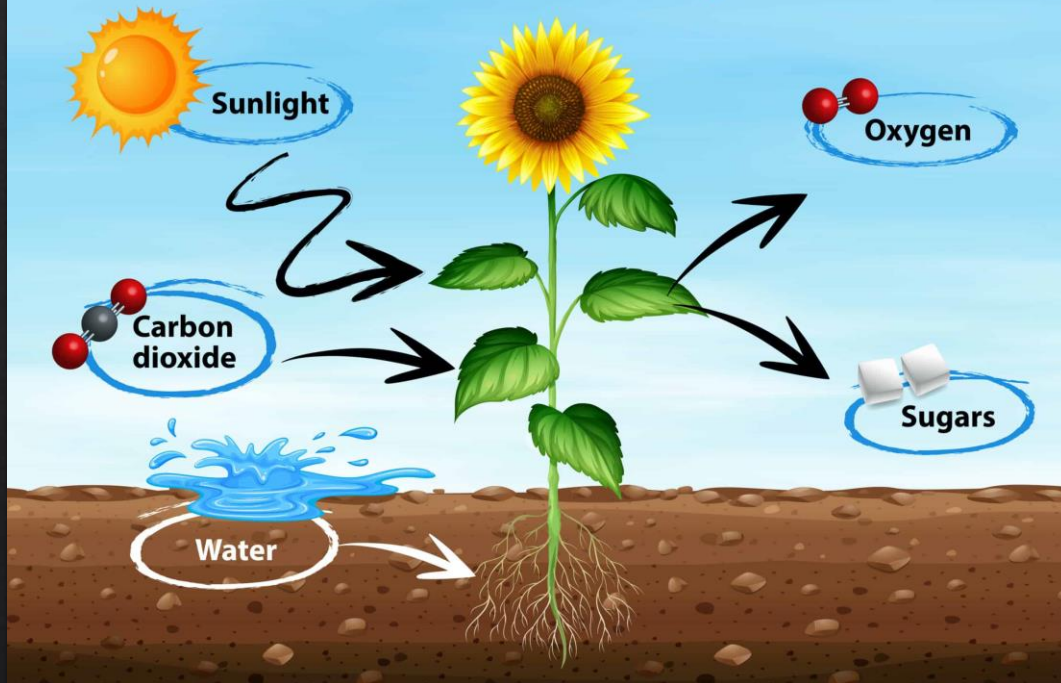


**Intro to Global Challenges –
Biodiversity and land use**

◇ Global challenge – personal challenge:
photosynthesis??

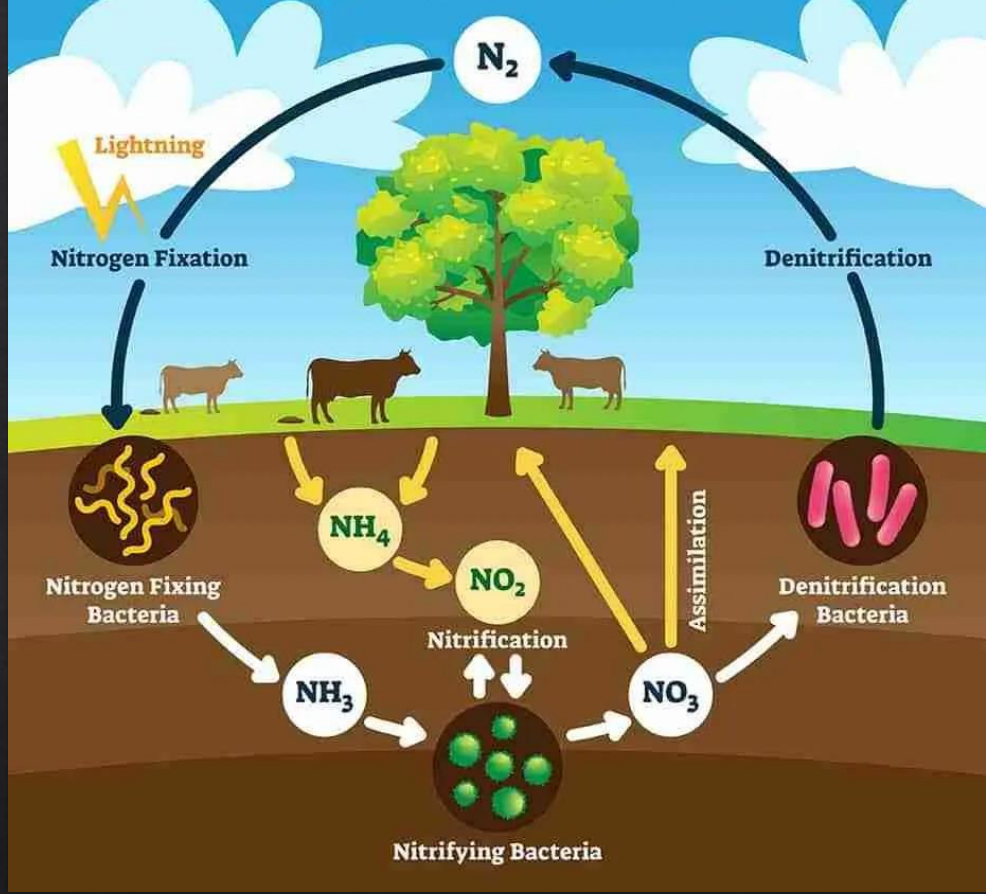
Process of Photosynthesis



◇ C, H, O

◇ 4. ????

NITROGEN CYCLE



Global Challenge – climate change?



GLOBAL CHANGE

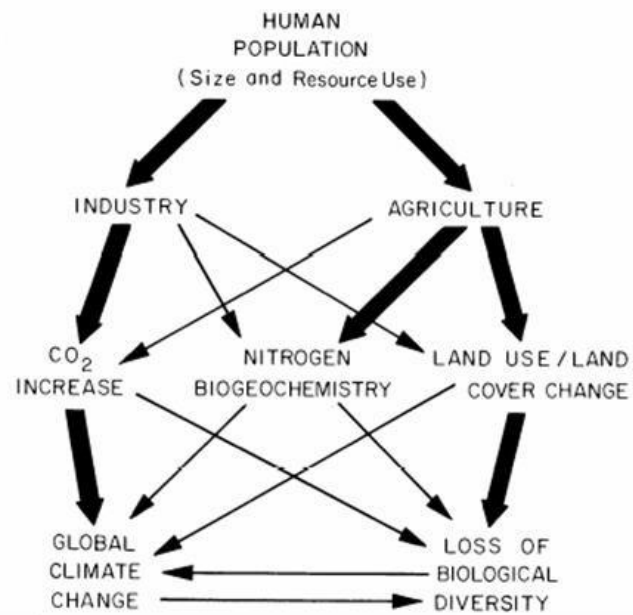
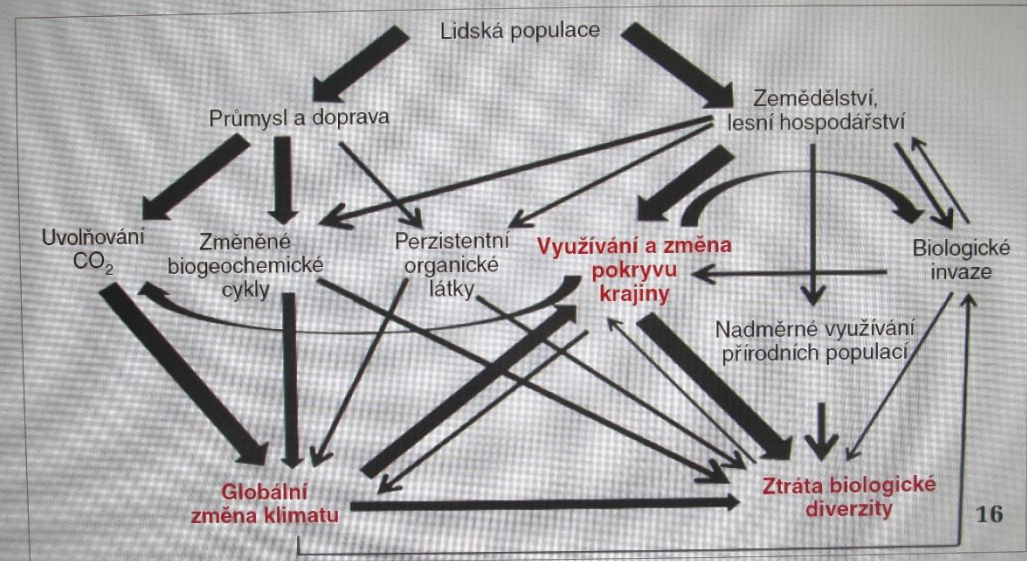


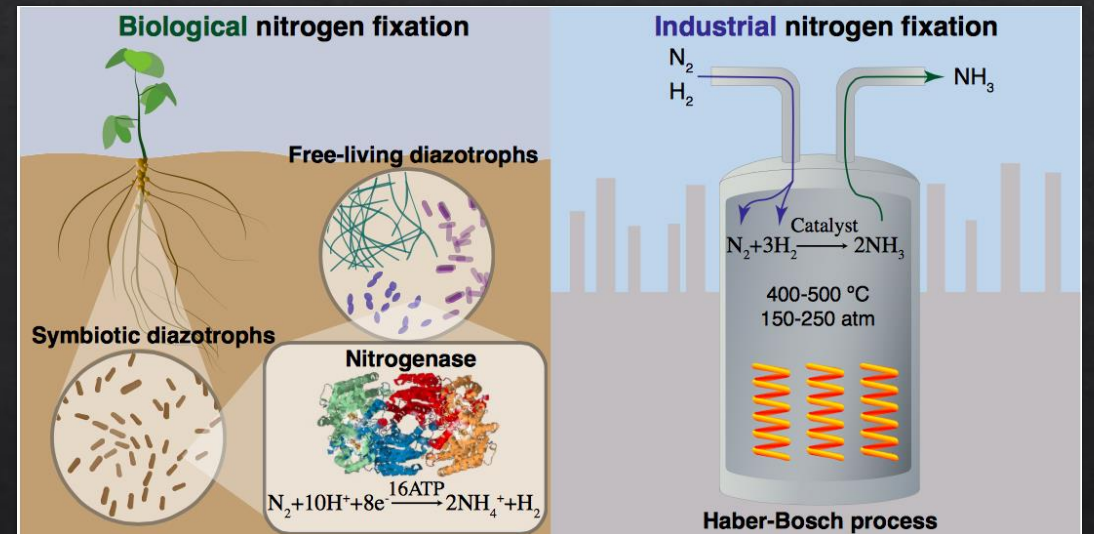
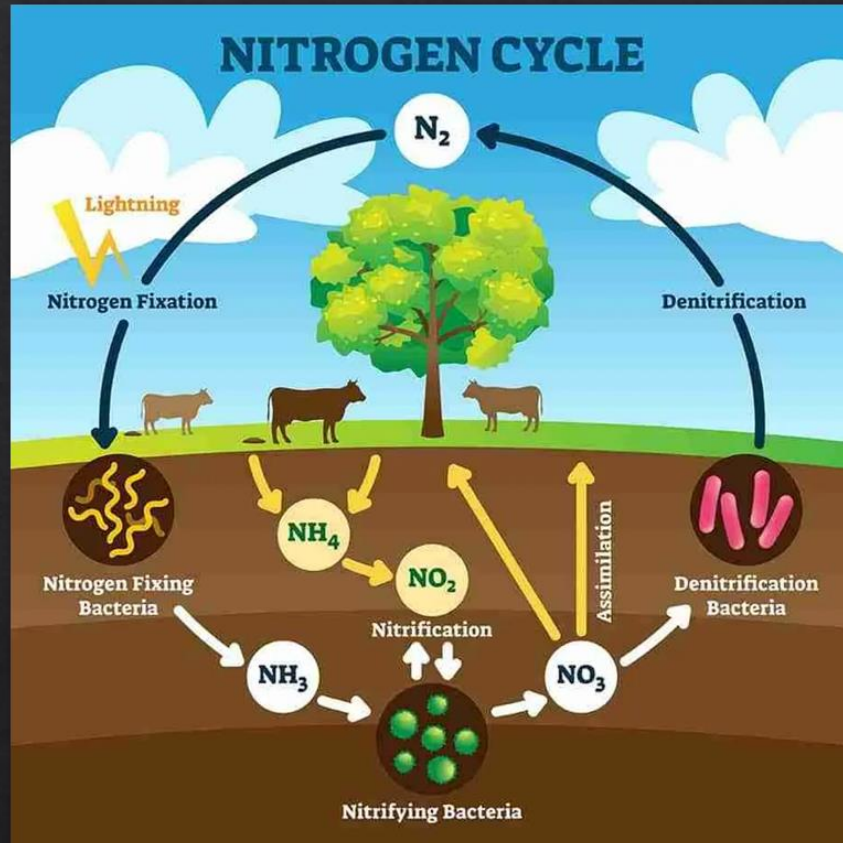
Figure from Vitousek, P.M. 1994. Beyond global warming: ecology and global change. Ecology 75: 1861-1876. © Ecological Society of America.



(2018) došli k neméně alarmujícímu výsledku. Při zvýšení průměrné teploty o 1,5 °C můžeme očekávat více než 50% ztrátu plochy areálu pro 6 % druhů hmyzu, 8 % rostlin a 4 % obratlovců. V případě zvýšení na 3,2 °C to ale pravděpodobně bude

16 Hlavní komponenty globálních změn prostředí na Zemi a jejich kauzální souvislosti. Orig. P. M. Vitousek a M. Rejmánek

odlesňování přispívá k produkci CO₂, ale



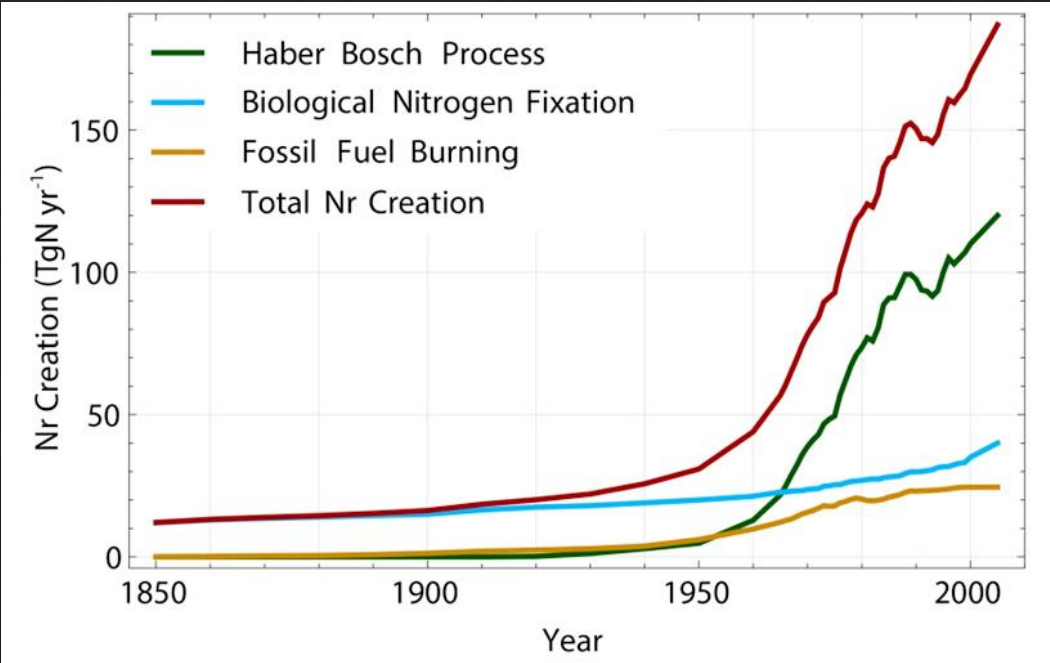
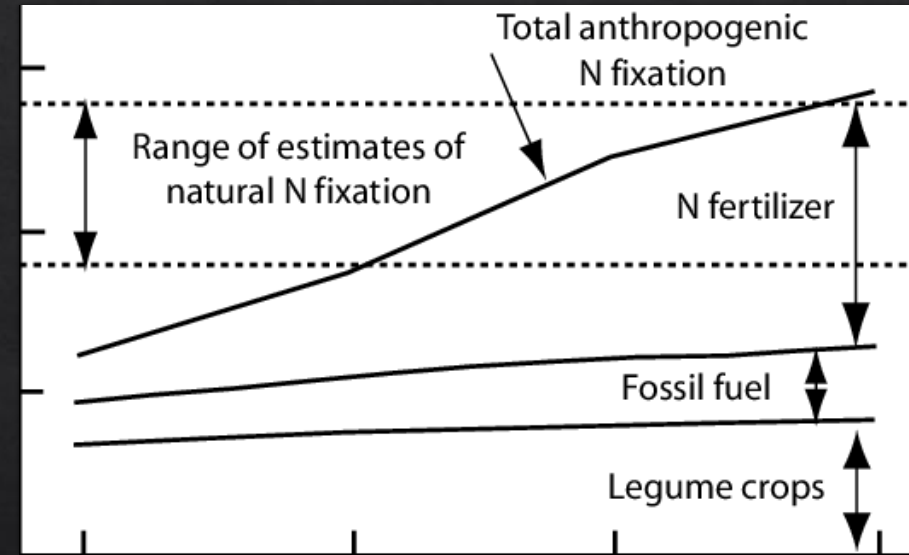


Figure 3: Anthropogenic reactive nitrogen (Nr) creation rates (in TgN/yr) from fossil fuel burning (orange line), cultivation-induced biological nitrogen fixation (blue line), Haber–Bosch process (green line) and total creation (red line).^{25,9}



POPs

compounds coming from volcanic activity and forest fires

dioxins and dibenzofurans

chemicals used in industry

polychlorobiphenyls, hexachlorobenzene, brominated compounds, perfluorinated compounds

by-products of industrial processes or resulting from incineration

dioxins and furans

chemicals used in agriculture (pesticides)

DDT, aldrin, dieldrin, endrin, chlordane, heptachlor, toxaphene, mirex, hexachlorobenzene

Question:

Sustanability x UNsustainability

Approach of natural sciences

- the use of renewable resources must not exceed the speed of their regeneration
- the use of non-renewable resources must not be faster than the rate of their replacement by other types of resources
- the production of all harmful substances must not exceed the absorption capacity of natural systems