

Its nitrogen pool have  
increased  
significantly, about 10



**ASSIGN  
BUSTER**

It is commonly known that over the decades there has been an increase in nitrogen deposition caused by human activity, which has had adverse impacts on ecosystems, impacts such as acidification of soil- a build-up of hydrogen cations in the soil which lower its pH (Bowman et al., 2008).

Human adjustments of natural biogeochemical cycles (gaseous cycles and sedimentary cycles), through industrial extraction, fuel burning or the production of fertilizers for agriculture can increase the availability of biologically reactive forms of naturally found elements such as Nitrogen (S. J. Caporn, 2013). Recent estimates suggest that anthropogenic (Human) contributions to the global reactive Nitrogen pool have increased significantly, about 10 times larger than it was before industrial times and is predicted to double, relative to current day levels, by 2050.

In this essay I will be discussing the effects N deposition has on semi-natural habitats - habitats that have either been directly or indirectly affected by human activity. High atmospheric Nitrogen depositions result in a higher Nitrogen concentration in the leaves of ericaceous species (linking to or denoting plants of the heather family) and a subsequent increase in Nitrogen : Phosphorus and Nitrogen : Potassium ratios in the tissue of ericaceous leaf's (Britton et al., 2008) this result in a higher herbivorous pressure over the species.

Litter deposition then adds to organic soil Nitrogen inputs where higher decomposition rates are recorded, which decreases the Carbon: Nitrogen ratio (Power et al., 2001). Nitrogen leaching increases, eventually affecting

water quality, especially in upland landscapes (Britton et al., 2008), although this has not always been observed (Power et al.

, 2004). Limiting nutrients can change which species become the dominant species and which become the submissive species in an ecosystem, this change can have dramatic effects on the complete biodiversity of ecosystems. A key example of this change is in the studies conducted on grassland ecosystems in England, with the limiting nutrient, Nitrogen, being added. The addition of Nitrogen had caused a small group of nitrogen-demanding grassland species to become dominant (Lawes and Gilbert 1880) Heathland is an essentially a man-made habitat which occurs on infertile soil characterized by having sclerophyllous, ericoid shrubs.

Experimental studies have shown that the increase in Nitrogen deposition has had dramatic and detrimental impacts on the structure and functioning of heathlands. This impact is because heathlands naturally occur on sandy, soil that is low in plant nutrients like nitrogen, the effect of Nitrogen deposition is to make heathlands more similar in composition to plant communities that inhabit more fertile soils, such as grasses. The ericoid shrubs can be out-competed by the more dominant perennial grasses with nitrogen deposition.

Therefore, biological diversity is reduced by N deposition as well as N deposition reducing species richness within communities (Peter M. Vitousek et al, 1997). “ Nitrogen deposition causes the conversion of heathlands to species-poor grasslands and forest” (Aerts and Berendse 1988) Conclusion

Nitrogen deposition can have adverse impacts on ecosystems such as Heathland, changing its structure and biodiversity.

<https://assignbuster.com/its-nitrogen-pool-have-increased-significantly-about-10/>