



What future for pollinators in the understorey vegetation under the impact of climate change?



B. Lanssens, L. François, A. Hambuckers, M. Moens, T. Anders, M. Tölle, A. Verma and L. Remy

Contact
Benjamin Lanssens
Email benjamin.lanssens@uliege.be
PhD Student, University of Liège

Introduction

- **Pollinators** are essential for the reproduction of wild plants and agricultural crops. However, their **populations** decline, which may impact crop production and biodiversity.
- **Climate change** and human activities are important factors that can affect the diversity and abundance of **understorey** plant species.
- In **forests**, the presence of pollinators is influenced by the composition of the **understorey** vegetation, which supports a majority of forest biodiversity.

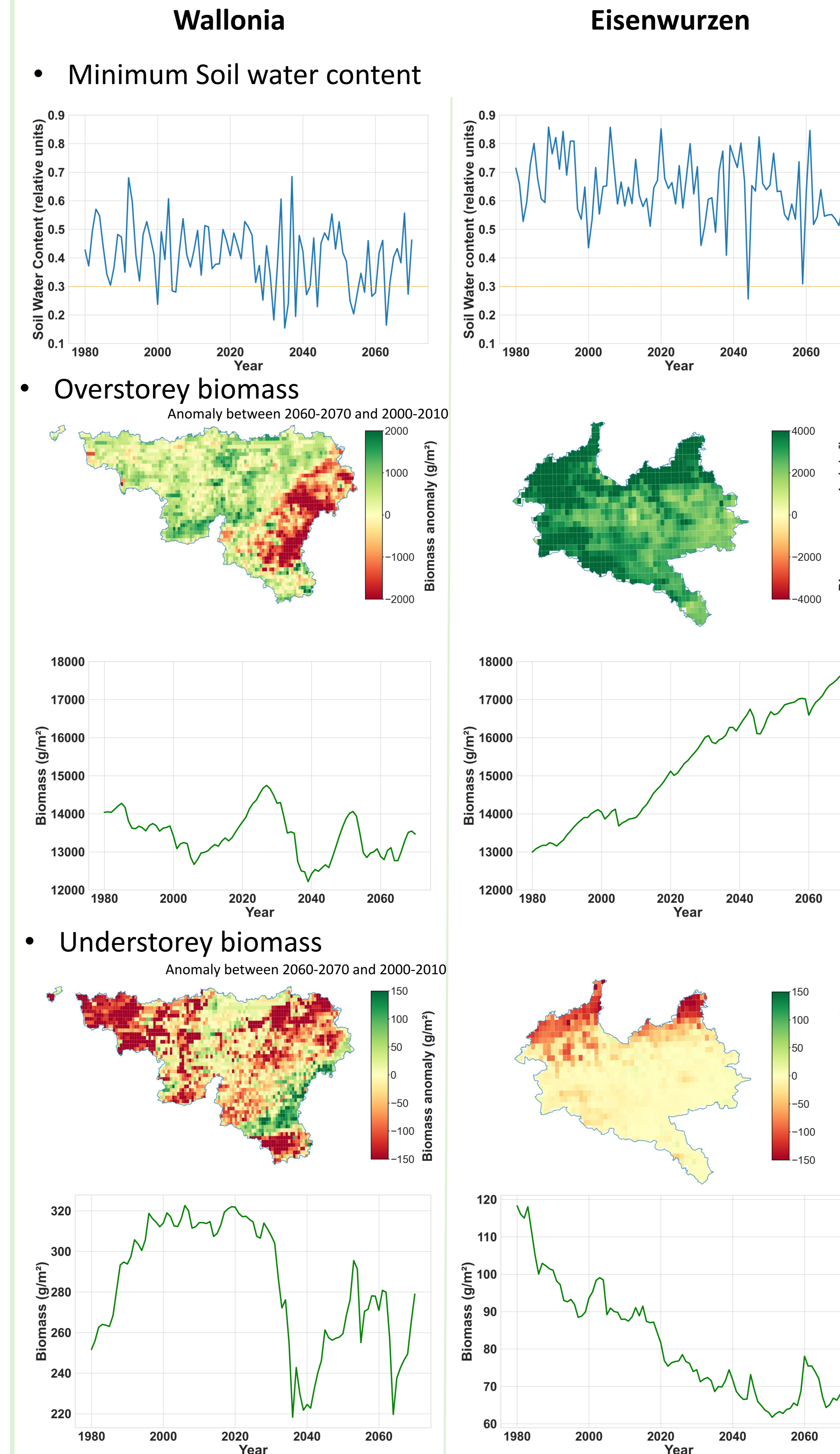
Methodology

- **30** plant species.
- Location : **Belgium** (Wallonia) and **Austria** (Eisenwurzen).
- Climate input : COSMO-CLM regional climate model.
- Spatial resolution : 3 km.
- Temporal range : **1980 to 2070**.

Models :

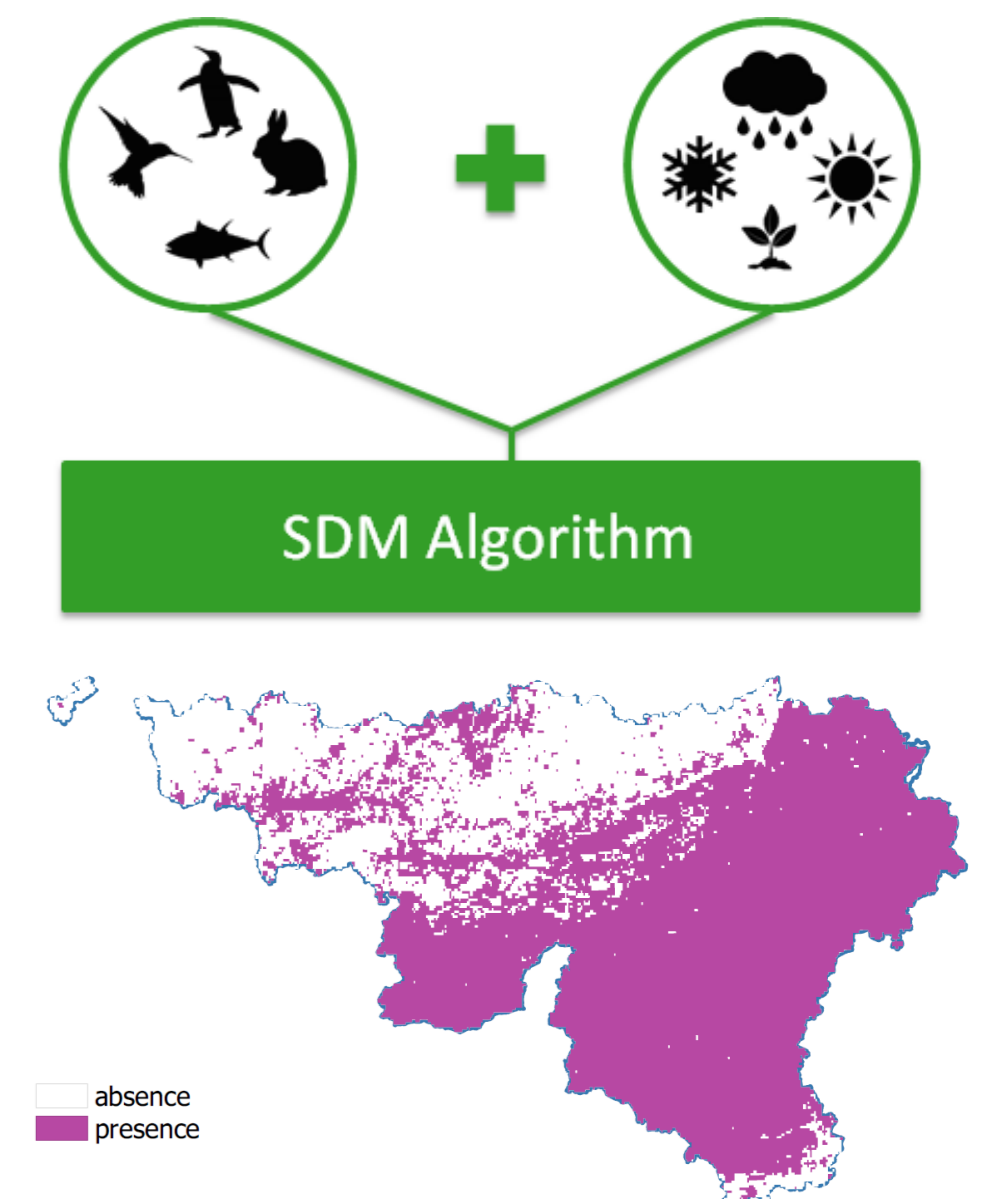
- **Occurrence** of key plant species for pollinators : species distribution model (SDM).
- Plant growth : **CARAIB** dynamics vegetation model.

Results

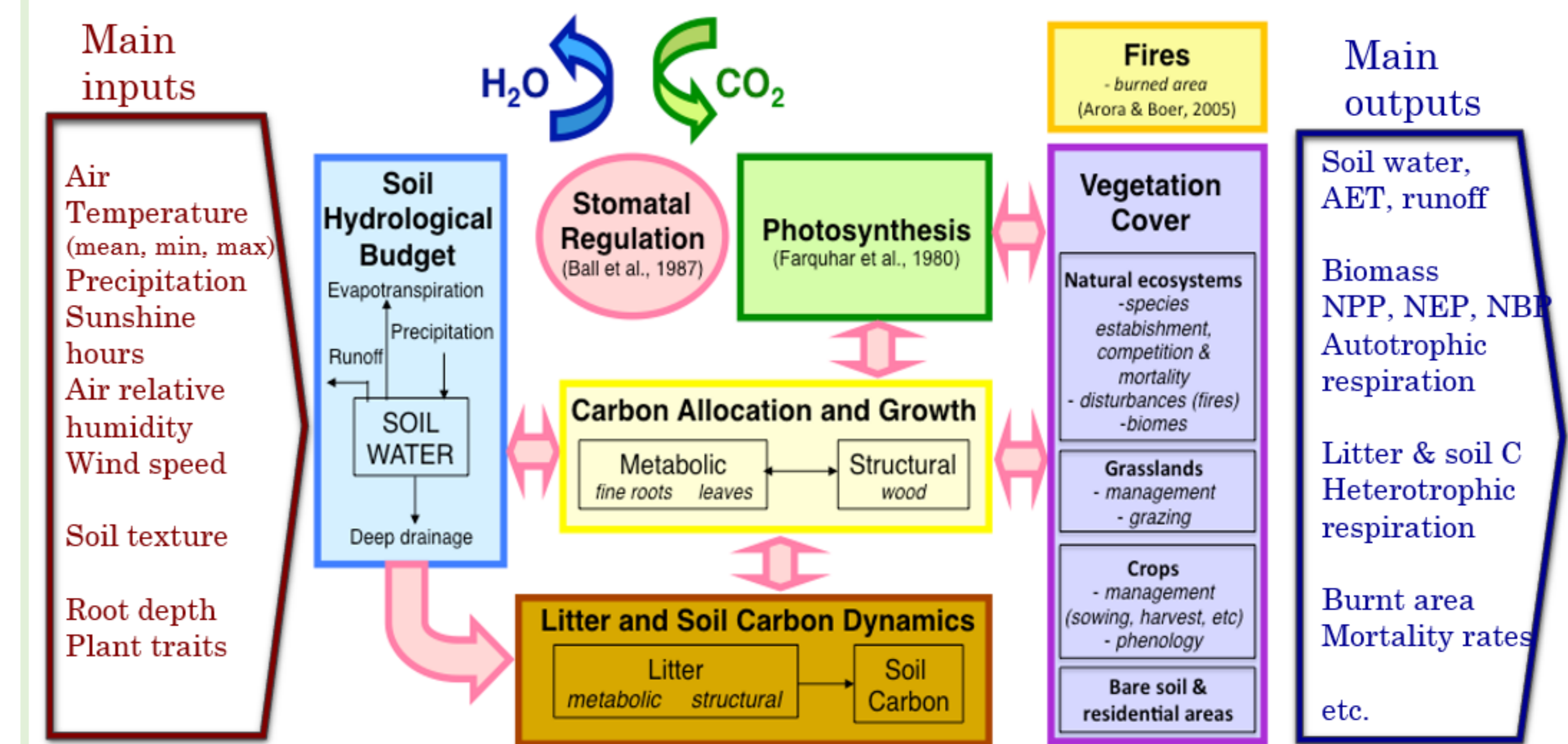


SDM model

- Observed species distribution : GBIF
- Modeling algorithm : Generalized Linear Model
- Presence of *Vaccinium myrtillus* In Wallonia



CARAIB model



Conclusion

- Eisenwurzen : CO2 ↑ ⇒ closed canopies ⇒ understorey vegetation ↓ ⇒ pollinator populations ↓ ⇒ Good management practices to maintain pollinator habitats.
- Wallonia : Drought ↑ ⇒ open canopies ⇒ understorey vegetation ↑ ⇒ Tree species vulnerable ⇒ Better species selection to support pollinator populations.
- Overall : Efforts are needed to mitigate these impacts and ensure healthy forest ecosystems.