

# **BMF Collaborative Project 18: Achieving synergic goals for nature protection, biodiversity conservation, and biomass promotion**

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## **1. Project description**

### ***1.1. Background***

The Southeastern United States (SE US) is an area obtaining great potential for wood pellet production and export to the European Union (EU) [1]. Wood pellets are promoted as a wood-based resource that may aid in achieving climate objectives and local development [2,3]. Most private landowners' reasons for keeping the land are to enjoy nature's beauty and scenery of nature and protect biological diversity, wildlife habitat, or water resources [1].

The question is:

- Can we simultaneously achieve the synergic goals by incorporating the landowners into nature protection, biodiversity conservation, and biomass energy promotion?

### ***1.2. Main objectives***

The current study has two objectives:

- Examine whether landowners maintaining lands for enjoying nature and conserving biodiversity are willing to sell wood products for biomass energy.

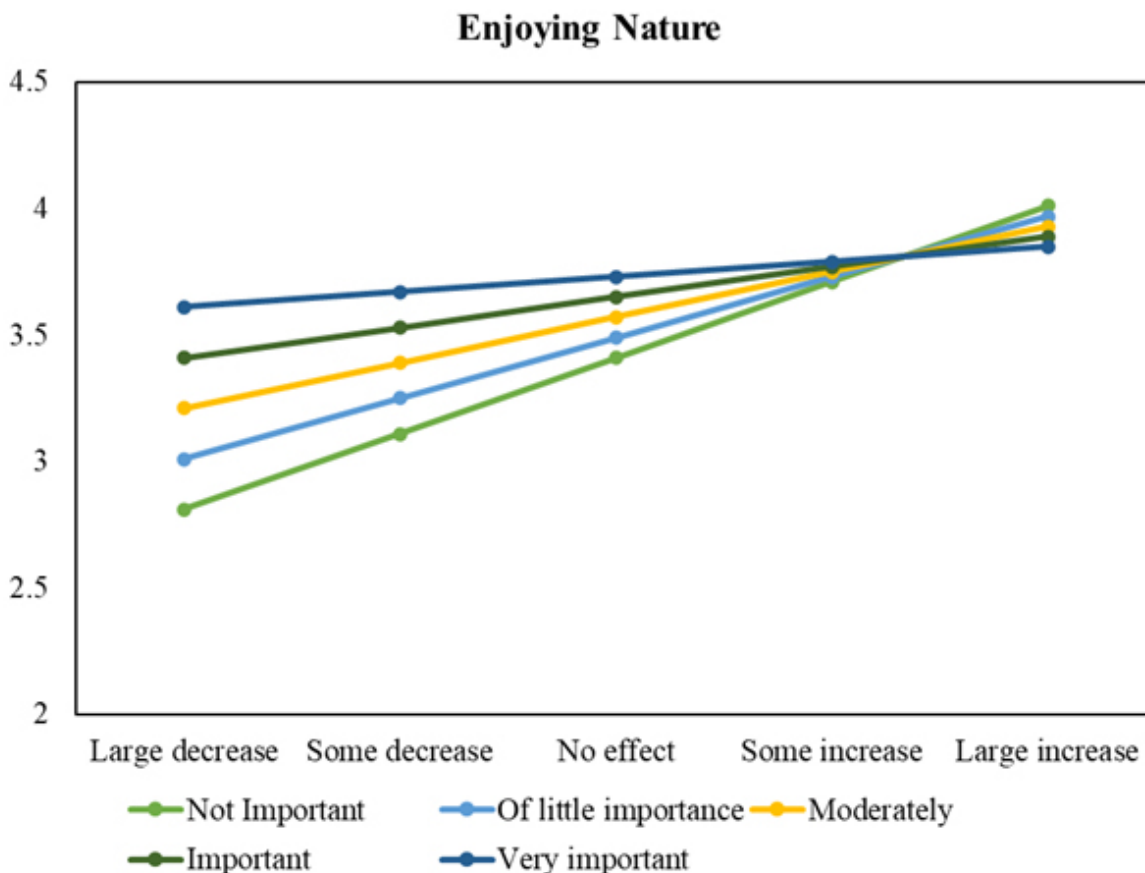
- Examine whether landowners maintaining lands to protect nature and conserve biodiversity are likely to sell wood products for biomass energy provided that they perceive no negative harm to nature and biodiversity in the land.

### 1.3. Materials

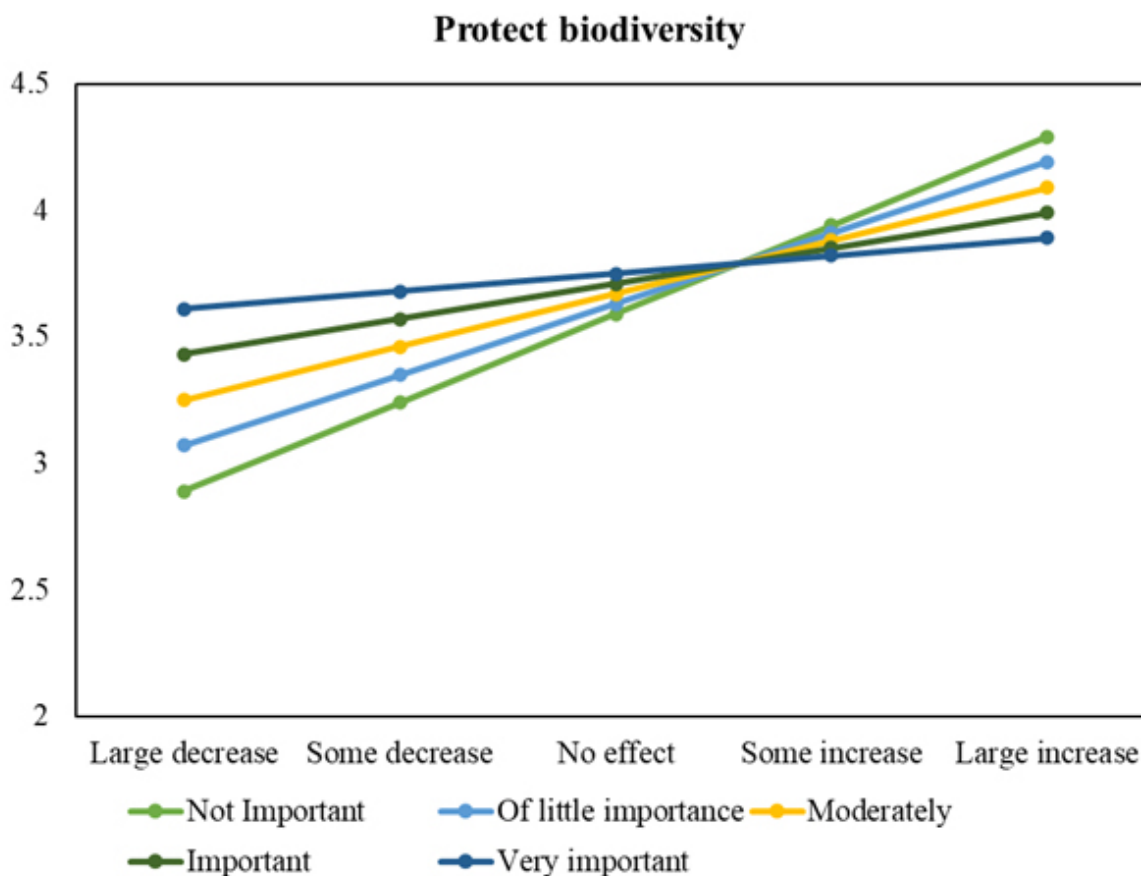
The mindsponge theory will be used for conceptual development. Bayesian Mindsponge Framework (BMF) analytics will be used for statistical analysis on a dataset of 707 private landowners in two SE US fuelsheds that supply the majority of the wood pellets [4-6]. The *bayesvl* R package, aided by the Markov chain Monte Carlo (MCMC) algorithm, will be employed for statistical analyses [7-10]. All the materials and code for this study will be made available to reduce the cost of doing science and to provide transparency [11,12]. For more information on BMF analytics, portal users can refer to the following book [13].

### 1.4. Main findings

The findings show that landowners are more likely to sell wood products for biomass energy as long as the wood used for energy positively impacts natural forest regeneration and biodiversity protection. However, landowners who consider enjoying nature and protecting biodiversity important are less affected by the positive impacts of the wood used for energy (see Figures 1 and 2).



**Figure 1.** Landowners' likelihood to cut and/or remove trees for sale for woody biomass-based energy in different scenarios of nature enjoyment significance and impacts of wood used for energy on natural forest regeneration.



**Figure 2.** Landowners' likelihood to cut and/or remove trees for sale for woody biomass-based energy in different scenarios of biodiversity protection significance and impacts of wood used for energy on conservation.

## 2. Collaboration procedure

Portal users should follow these steps to register to participate in this research project:

- Create an account on the website (preferably using an institution's email).
- Comment your name, affiliation, and your desired role (e.g., literature review, method and material description, result presentation, discussion, etc.) in the project below this post.
- Patiently wait for the formal agreement on the project from the AISDL mentor.

If you have further inquiries, please contact us at [aisdl\\_team@mindsponge.info](mailto:aisdl_team@mindsponge.info).

If you have been invited to join the project by an AISDL member, you are still encouraged to follow the above formal steps.

All the resources for conducting and writing the research manuscript will be distributed upon project participation.

AISDL mentor for this project: **Minh-Hoang Nguyen**.

AISDL members who have joined this project: Quy Van Khuc, Tam-Tri Le, and Quan-Hoang Vuong.

The research project strictly adheres to scientific integrity standards, including authorship rights and obligations. We look forward to working with participants on this research project.

## References

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