Bihome Alpha Design Brief

PINA NatureWise Design Contest

Climate change, coupled with ever growing global supply chains are continually increasing the strain on the ecological webs that sustain life on planet Earth. Traditionally, suburban living has been seen as part of the problem. Our entry, named BiHome Alpha, attempts to change that idea by exploring what sort of sustainable living practices may be achievable within an ordinary suburban landscape without drastically changing the amount of time or money a typical homeowner puts into their property. In this design, we apply permaculture principles to a 0.6 acre partially wooded property. Four focus areas provide the theme of the plan:

- Collection of performance data in order to compare inputs and outputs between the baseline and transformed landscape. Input data will include time, money, and external material for initial development and maintenance of both. Output data will include metrics of human and ecological interest, including analysis of soil health and carbon content, water management, as well as measuring the yield of the human-consumable goods produced within the landscape.
- Intentional integration of mycelium into newly developed plots to aid in plant growth, increase soil health, and provide edible mushrooms.
- Integration of cost effective water management and retention techniques, and
- Carbon sequestration through growth of the soil and trees within the property.

Other than these themes, the design incorporates an indoor set up for growing seedlings, a small aquaponics tank, a spiral herb garden, multiple raised beds planted with annual guilds, a small food forest of apple and cherry, and finally a copse of fast growing deciduous trees that can be coppiced for lumber. Included in this lumber forest are American Chestnut saplings breeded by the American Chestnut Foundation, and Paulownia, which is often referred to as the fastest growing deciduous tree in the world.

BiHome Alpha serves as the primary testbed for the web application we are developing, named bihome. This application enables users to transform their yard from a sterile grass lawn into a usable, practical permaculture based development -- all for a similar amount of time and effort it has taken a traditional homeowner to maintain a lawn-focused landscape. The app shows homeowners rational reasons why the current practice of suburban grass development makes no economic sense, and it cuts down the amount of research and planning necessary to execute permaculture principles. Of course when the users are ready to learn more, the app provides easy access to all existing communities that will gladly teach a curious new member.

We have attempted to use this contest entry to showcase the asthetic of the app, and will be using the data collected through execution of the plan to further improve the app's functionality before releasing it to a wider audience.