**Analysis of Aboveground Biomass (AGB) in the University of Ibadan Botanical Garden (BG\_AGB\_2024)**

**Introduction**

The Aboveground Biomass (AGB) Map provided is a spatial distribution map of biomass density in the University of Ibadan Botanical Garden (UIBG). This analysis is critical for understanding carbon storage potential, vegetation health, and ecological productivity. The map visualizes biomass levels using a color gradient ranging from low (0.27 Mg/ha) to high (7.02 Mg/ha).

**Spatial Distribution of Biomass**

1. Color Gradient Representation:
   * Green areas indicate high biomass density (7.02 Mg/ha), signifying regions with mature trees, dense vegetation, or high carbon sequestration capacity.
   * Yellow areas represent moderate biomass levels, suggesting regions with intermediate tree cover, younger vegetation, or lower canopy density.
   * Red areas indicate low biomass density (0.27 Mg/ha), which may correspond to open fields, sparsely vegetated areas, or degraded sections.
2. Biomass Distribution Patterns:
   * High Biomass Zones: Found mainly in the western and central portions, corresponding to arboretum section with dense tree cover.
   * Moderate Biomass Zones: Scattered across the landscape, reflecting nursery and ornamental garden sections with a mix of trees and shrubs.
   * Low Biomass Zones: Concentrated in the eastern and southeastern sections, corresponding to Open-field Section with sparse vegetation and grasslands.

**Ecological and Environmental Implications**

1. Carbon Sequestration Potential:
   * The high biomass areas contribute significantly to carbon storage, playing a role in climate change mitigation by absorbing atmospheric CO₂.
   * Identifying low biomass zones helps prioritize reforestation or enrichment planting to enhance carbon sequestration.
2. Forest Health and Degradation Assessment:
   * Areas with lower biomass densities may indicate degraded sections, deforested areas, or regions requiring active restoration.
   * Monitoring biomass changes over time using remote sensing and GIS tools can aid in tracking ecosystem recovery and forest health.
3. Land Management and Conservation Planning:
   * The biomass gradient can guide conservation strategies, ensuring that high biomass areas are protected while degraded areas receive targeted interventions.
   * Understanding biomass variation within the botanical garden can help in planning sustainable land-use practices, habitat restoration, and biodiversity conservation.