

3. Anthromes as social-ecological systems: mapping regime shifts globally

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Anthromes (anthropogenic biomes) map the globally significant ecological patterns created by sustained direct human interactions with ecosystems, simplifying detection and comprehension of global patterns and trends. Here we investigate anthromes as a tool for identifying, mapping, and measuring globally significant patterns in social-ecological systems, with changes in anthrome patterns representing regime shifts in these. Existing anthrome classifications do capture some of the significant global patterns in social-ecological systems, thereby enabling global mapping and measurement of some major shifts in these. However, key elements of social-ecological systems are missing from existing anthrome systems, limiting their current usefulness, especially for regime shift detection in regions where exurban settlement patterns and market influences are changing rapidly. To overcome these limits, major advances are required in two areas. First, appropriately scaled global data on key elements of social systems, especially economic systems and market influence must be developed. Second these must be incorporated into anthrome classification and mapping systems, both in theory and in practice. Progress in both areas is strong, indicating that anthrome mapping may soon emerge as a powerful tool for global detection and mapping of major regime shifts in social-ecological systems.