Environmental researchers propose radical 'human-centric' map of the world

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Ecologists pay too much attention to increasingly rare "pristine" ecosystems while ignoring the overwhelming influence of humans on the environment, say researchers from McGill University and the University of Maryland, Baltimore County (UMBC).

Prof. Erle Ellis of UMBC and Prof. Navin Ramankutty of McGill assert that the current system of classifying ecosystems into biomes (or "ecological communities") like tropical rainforests, grasslands and deserts may be misleading. Instead, they propose an entirely new model of human-centered "anthropegenic" biomes in the November 19 issue of the journal *Frontiers in Ecology and the Environment*.

"Ecologists go to remote parts of the planet to study pristine ecosystems, but no one studies it in their back yard," said Ramankutty, assistant professor in McGill's Department of Geography and the Earth System Science Program. "It's time to start putting instrumentation in our back yards – both literal and metaphorical – to study what's going on there in terms of ecosystem functioning."

Existing biome classification systems are based on natural-world factors such as plant structures, leaf types, plant spacing and climate. The Bailey System, developed in the 1970's, divides North America into four climate-based biomes: polar, humid temperate, dry and humid tropical. The World Wildlife Fund (WWF) ecological land classification system identifies 14 major biomes, including tundra, boreal forests, temperate coniferous forests and deserts and xeric shrublands. For their part, Ellis

and Ramankutty propose a radically new system of anthropogenic biomes – dubbed "anthromes" – which includes residential rangelands, dense settlements, villages and croplands.

"Over the last million years, we have had glacial-interglacial cycles, with enormous changes in climate and massive shifts in ecosystems," said Ramankutty. "The human influence on the planet today is almost on the same scale. Nearly 30 to 40% of the world's land surface today is used just for growing food and grazing animals to serve the human population."

The researchers argue human land-use practices have fundamentally altered the planet. "Our analysis was quite surprising," said Ramankutty. "Only about 20% of the world's ice-free land-surface is pristine. The rest has some kind of anthropogenic influence, so if you're studying a pristine landscape, you're really only studying about 20% of the world."

"If you want to think about going into a sustainable future and restoring ecosystems, we have to accept that humans are here to stay. Humans are part of the package, and any restoration has to include human activities in it."

Source: McGill University