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TITLE: Creation of a high spatio?temporal resolution global database of continuous mangrove forest cover for the 21st century (CGMFC?21)

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ABSTRACT:

Abstract Aim To provide high?resolution local, regional, national and global estimates of annual mangrove forest area from 2000 through to 2012 with the goal of driving mangrove research questions pertaining to biodiversity, carbon stocks, climate change, functionality, food security, livelihoods, fisheries support and conservation that have been impeded until now by a lack of suitable data. Location Global, covering 99% of all mangrove forests. Methods We synthesized the Global Forest Change database, the Terrestrial Ecosystems of the World database and the Mangrove Forests of the World database to extract mangrove forest cover at high spatial and temporal resolutions. We then used the new database to monitor mangrove cover at the global, national and protected area scales. Results Countries showing relatively high amounts of mangrove loss include Myanmar, Malaysia, Cambodia, Indonesia and Guatemala. Indonesia remains by far the largest mangrove?holding nation, containing between 26% and 29% of the global mangrove inventory with a deforestation rate of between 0.26% and 0.66% per year. We have made our new database, CGMFC?21, freely available. Main conclusions Global mangrove deforestation continues but at a much reduced rate of between 0.16% and 0.39% per year. Southeast Asia is a region of concern with mangrove deforestation rates between 3.58% and 8.08%, this in a region containing half of the entire global mangrove forest inventory. The global mangrove deforestation pattern from 2000 to 2012 is one of decreasing rates of deforestation, with many nations essentially stable, with the exception of the largest mangrove?holding region of Southeast Asia. We provide a standardized spatial dataset that monitors mangrove deforestation globally at high spatio?temporal resolutions. These data can be used to drive the mangrove research agenda, particularly as it pertains to monitoring of mangrove carbon stocks and the establishment of baseline local mangrove forest inventories required for payment for ecosystem service initiatives.

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