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TITLE: Hidden Loss of Wetlands in China

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ABSTRACT:

To counter their widespread loss, global aspirations are for no net loss of remaining wetlands [1]. We examine whether this goal alone is sufficient for managing China's wetlands, for they constitute 10% of the world's total. Analyzing wetland changes between 2000 and 2015 using 30-m-resolution satellite images, we show that China's wetlands expanded by 27,614 km2 but lost 26,066 km2-a net increase of 1,548 km2 (or 0.4%). This net change hides considerable complexities in the types of wetlands created and destroyed. The area of open water surface increased by 9,110 km2, but natural wetlands-henceforth "marshes"-decreased by 7,562 km2. Of the expanded wetlands, restoration policies contributed 24.5% and dam construction contributed 20.8%. Climate change accounted for 23.6% but is likely to involve a transient increase due to melting glaciers. Of the lost wetlands, agricultural and urban expansion contributed 47.7% and 13.8%, respectively. The increase in wetlands from conservation efforts (6,765 km2) did not offset human-caused wetland losses (16,032 km2). The wetland changes may harm wildlife. The wetland loss in east China threatens bird migration across eastern Asia [2]. Open water from dam construction flooded the original habitats of threatened terrestrial species and affected aquatic species by fragmenting wetland habitats [3]. Thus, the "no net loss" target measures total changes without considering changes in composition and the corresponding ecological functions. It may result in "paper offsets" and should be used carefully as a target for wetland conservation.

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