



The Asian dowitcher (*Limnodromus semipalmatus*) depends on coastal wetlands in Lianyungang, China, a region in need of better protection.

Edited by Jennifer Sills

Gaps in coastal wetlands World Heritage list

China, South Korea, and North Korea have been working jointly to conserve migratory waterbirds by nominating more than 17 coastal wetlands in the Yellow Sea for UN Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site designation (1–3). Conspicuously missing from this list are the tidal flats and adjacent aquaculture ponds of Lianyungang, in Jiangsu Province, China.

Lianyungang is ranked in the top five of all key coastal waterbird sites in China for both total waterbird abundance and important waterbird populations. The region supports at least 200,000 migratory waterbirds annually (4), including more than 20,000 Asian dowitchers (*Limnodromus semipalmatus*) (5), almost the entire global population of this Near Threatened species (6). Lianyungang is also a key stopover and wintering site for at least 28 other waterbird species along the East Asian–Australasian Flyway (4, 7). Most of these waterbirds have experienced large population declines over the past several decades, primarily due to habitat loss in the Yellow Sea (8, 9), and many are now threatened with extinction.

Sites that are critical to most other species have been designated or nominated as World Heritage Sites, but the Asian dowitcher has

been neglected. Lianyungang's tidal flats and aquaculture ponds provide vital foraging grounds and high-tide roosts, respectively, to the Asian dowitchers and other migratory waterbirds to refuel and rest. Ongoing conversion of these crucial Asian dowitcher habitats at Lianyungang (5) will undoubtedly affect its global population (10). As a result, excluding Lianyungang from proposed protected sites poses an immediate, severe threat to the survival of the only and endemic dowitcher species that uses the East Asian–Australasian Flyway (5).

We urge UNESCO and the International Union for Conservation of Nature (IUCN) to work with the state and provincial authorities in China to nominate Lianyungang for designation as a World Heritage Site. The proposed Linhong Estuary Provincial Wetland Park encompassing some of the core habitats for Asian dowitchers and other waterbirds can serve as the backbone of such a nomination. UNESCO has articulated the importance of designing the Yellow Sea World Heritage network to maximize its efficacy and integrity (11). Omitting Lianyungang and Asian dowitchers from protection will greatly undermine these goals.

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COMPETING INTERESTS

T.M. has received small honoraria from Friends of Nature, a local nonprofit organization advocating the protection of Lianyungang wetlands.

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Reverse the hidden loss of China's wetlands

2022 marks the 30th anniversary of China's accession to the Ramsar Convention, the international treaty for wetland conservation and wise use. News headlines celebrate recent increases in the total area of protected wetlands [e.g., (1)], but focusing on total extent masks decline in specific wetland types. Despite some progress, the degradation of many Chinese wetlands habitats continues. Renewed efforts, supported by more international collaboration, are required to protect the nation's remaining wetland environments.

Since joining Ramsar, China has promoted wetland conservation and restoration. The National Wetland Conservation Program, now in operation for 20 years, has invested more than US\$3 billion, established 602 wetland protected areas, and officially protected 52.7% of the total wetland area (1). After declining by 61,800 km² (12%) between 1980 and 2015, China's wetland area reportedly increased by a relatively modest 903 km² between 2015 and 2020 (2).

However, China's wetlands are still under threat. Recent net increases in wetland area were driven by expansion of reservoirs and aquaculture ponds as well as climate change–related lake expansion on the Tibetan Plateau. These environments are functionally very different from inland marshes, which declined by more than 69,100 km² between 1980 and 2020 (2). Agriculture and urbanization are still encroaching into huge areas of wetlands (3, 4). Water pollution and climate change are chronic challenges facing wetland conservation (5).

On 1 June, a new Wetland Protection Law came into force (6), providing more legal protection for China's wetlands. Such national efforts should be supported by international collaboration. In November, Wuhan will host the 14th Conference of Parties to the Ramsar Convention (COP14), providing opportunities for China to share experiences and learn from others (7). “Zero net loss” protection targets (8) should be required for specific wetland types, and nature-based solutions (9) should be applied in wetland restoration. Wetlands have huge potential in China's climate change mitigation (10),

biodiversity conservation (11), and carbon sequestration strategies (12). Conservation efforts to protect them should be meaningful and comprehensive.

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Asia's regional conflicts and cascading hazards

Russia's invasion of Ukraine highlights how regional conflicts can have global consequences on food and energy (1). The global consequences of regional wars could be even more dire in regions that depend on the cryosphere, which includes the Arctic, Antarctica, and the Qinghai-Tibetan Plateau and surrounding mountain ranges, known as High-Mountain Asia (HMA). For example, a series of wars, ceasefires, and ongoing skirmishes among China, India,

and Pakistan pose immediate threats to HMA glaciers and the valleys below them.

Climate change and non-war-related human activities have already profoundly affected the cryosphere, resulting in glacial retreat, subsurface ice melting, and permafrost degradation. These changes decrease the stability of mountain slopes and the integrity of infrastructure, potentially exacerbating cryosphere-related hazard cascades such as glacial lake outburst floods, ice avalanches, and landslides (2).

Several areas within the HMA have been hot spots for military conflicts over the past several decades. Chinese, Indian, and Pakistani military facilities are densely deployed within the region (3). The methods of destruction available to the military, including nuclear weapons, have become increasingly powerful. Artillery fire can directly damage glaciers and permafrost, triggering cascading hazards (4). Wars can also damage essential infrastructure (such as dams) and threaten the downstream water supply.

HMA serves as Asia's water tower, supporting 800 million people (5, 6). Rapid population growth has already led to water shortages in the region, reducing crop yield and potentially causing food crises (7). War would disrupt the region's overall water supply. Water shortages could potentially affect agriculture on which much of the world depends. For example, India is the world's largest producer of milk, pulses (edible plant seeds, such as beans), and jute (a fiber used in coarse cloth) and is the second-largest producer of rice, wheat, sugarcane, groundnut, vegetables, fruit, and cotton (8). Because of the wide-ranging contributions of countries such as India, regional conflicts in HMA could cause not only cryosphere-related hazards and regional food crises but also a global humanitarian catastrophe.

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