

## CONSERVATION WATCH

# The Korean Grand Canal: another huge threat to the region's wetlands and waterbirds

NIAL MOORES

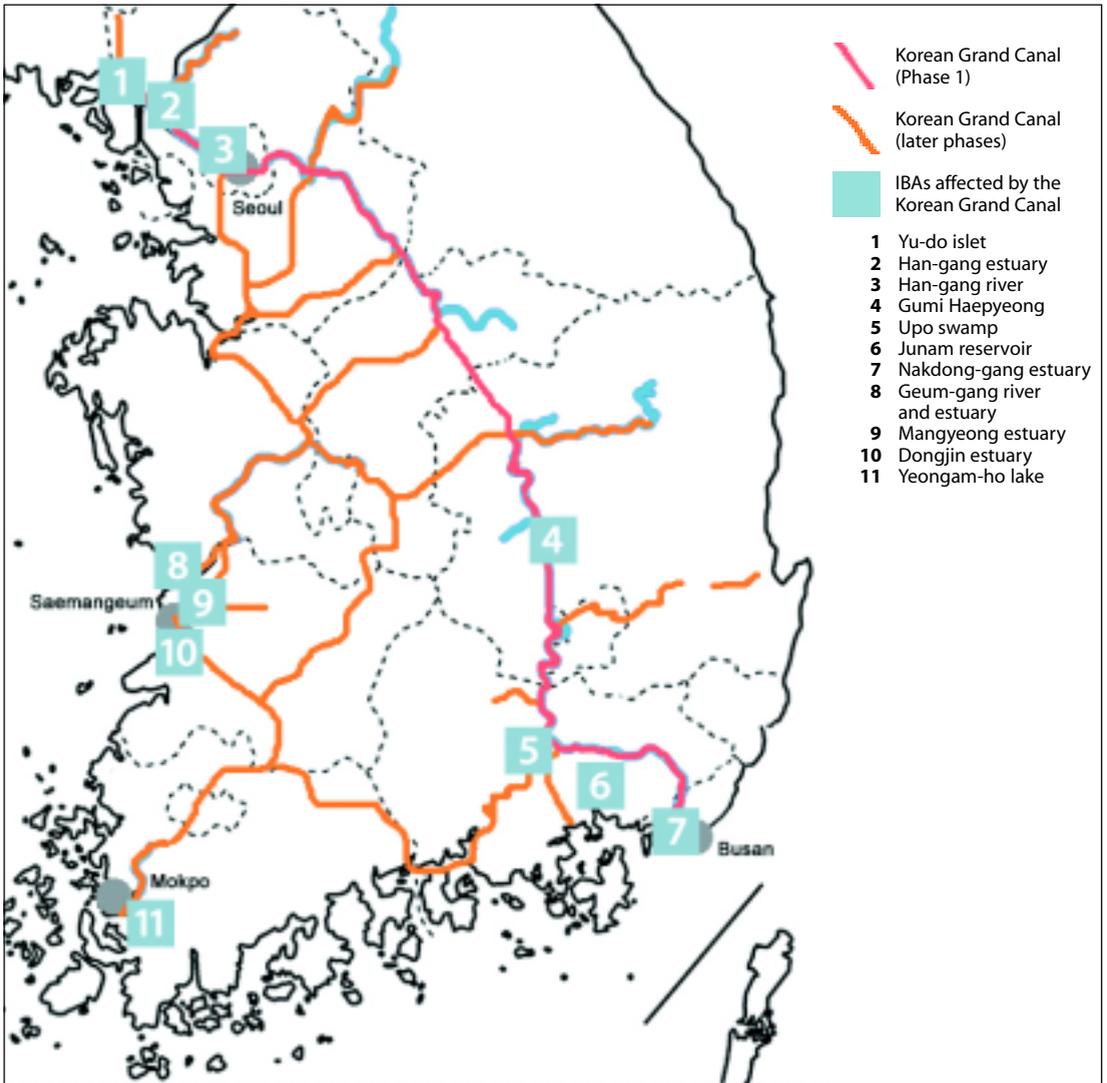
Central to South Korea's importance to bird conservation are the country's wetlands. Of the 22 globally threatened bird species that occur annually, 15 are waterbirds and 20 are typically found in wetlands or adjacent habitats. In recent years, and most pertinently as South Korea prepares to host the tenth Ramsar Convention conference in late 2008, there has been increasing public awareness and government intent to conserve wetlands and wetland biodiversity. However there remains, unsurprisingly, an obvious time-lag between the old construction-driven development policy and this more recent recognition of the benefits of wetland conservation and sadly, the title of the article in OBC Bulletin 36, "Wetlands: Korea's most-threatened habitat" (Moores 2002) is as appropriate now as then. Ongoing threats to wetlands include the completion of the 33-km long Saemangeum seawall in 2006, impounding the Yellow Sea's most important known shorebird site (Barter 2002). This has already led to a massive

decline in shorebird numbers in South Korea, and an estimated c.20% decline in the global population of the Great Knot *Calidris tenuirostris* since 2006 (Rogers, Moores & Kim *in prep.* 2008). Several other internationally important intertidal wetlands are still threatened with reclamation in the near-future, including Song Do in Incheon and Aphae Do in Shinan County. Moreover, the recently proposed Korean Grand Canal project aims to canalise 3,134 km of the Korean peninsula's rivers. Whilst this massive infrastructure project has for now been suspended (since early June 2008), it has yet to be cancelled. This article provides some background information on South Korea's rivers, and the huge threats to avian biodiversity posed by this project if it were resurrected and went ahead.

South Korea is a highly developed, densely populated, rather mountainous peninsula, a little under 100,000 km<sup>2</sup> in area, lying between 38°N–34°N and 126°E–130°E. Mean temperatures range from -6° to +7°C in January and +23° to +27°C

**Plate 1.** Stretch of Han River used by Scaly-sided Mergansers *Mergus squamatus*, January 2005.





**Figure 1.** Map showing Phase 1 and later phases of the Korean Grand Canal, and the IBAs affected by the project.

in August, with an average annual precipitation between 500 and 1,500 mm; two-thirds of this precipitation falls in the summer months (June–September). Many rivers are shallow, frozen or even dry in winter. Human demands on existing water resources are high throughout the year and this has led to the construction of 18,000 reservoirs and dams (KOWACO 2004).

Widespread breeding species in rivers and adjacent habitats include Brown Dipper *Cinclus pallasii* and Grey Wagtail *Motacilla cinerea* (on rocky higher stretches), Mandarin Duck *Aix galericulata* (on forest-fringed middle stretches), and Long-billed Plover *Charadrius placidus* and Japanese Wagtail *Motacilla grandis* (on shingle-rich lower stretches). Common Merganser *Mergus*

*mergus* also breeds locally (at least in the north-east), while Plumbeous Water Redstart *Rhyacornis fuliginosa* appears to be extending its range into South Korea. First recorded in Korea in 2006 (Moore *et al.* 2006), a pair nested in a river-bridge in the south-east in 2007 (Birds Korea unpublished data).

Although the country is crisscrossed with small streams and irrigation channels, there are only five major river systems: the Han in the north, flowing west through the capital Seoul, to the Yellow Sea; the Nakdong, flowing south and south-east through the major cities of Daegu and Busan, out into the Korean Strait; the Geum and the Yeongsan in the west and the Seomjin that flows south. All have large dams within their catchments, and three also



**Plate 2.** Scaly-sided Merganser *Mergus squamatus*, Han River, January 2005.

have estuarine barrages. The Nakdong (506 km) is the longest and has the most dams (308) within its catchment, while the Han River is the largest in terms of drainage area and annual runoff volume, accounting in both cases for approximately a quarter of the national total (KOWACO 2004).

Sections of all five of these major rivers are or were internationally important for birds, according to count data published by the Ministry of Environment (e.g. MOE 1999, 2004 and 2005) as well as by data gathered by NGOs. While recent reclamation in the estuary of the Seomjin River has greatly reduced its conservation importance, the Han, Geum and Nakdong estuaries regularly support Swan Goose *Anser cygnoides* and Black-faced Spoonbill *Platelea minor*; stretches of the Geum and Yeongsan upstream of their estuarine barrages regularly support much of the global Baikal Teal *Anas formosa* population; a middle stretch of the Nakdong at Gumi supports several thousand Hooded Crane *Grus monacha* during migration; and the Han and Nakdong (and major tributaries) annually support 30–50 over-wintering

Scaly-sided Merganser *Mergus squamatus*, out of an estimated world population of between only 1,000 and 2,500 (Wetlands International 2006).

Sections of four out of five of these major rivers are therefore internationally important for waterbirds (as defined by the Ramsar Convention). They are also extremely important for other wildlife, including some 20 endemic fish species, several of which are confined to the catchment of the Han, and several others to the Nakdong (EHI 2008). Moreover, river water is widely and heavily used for human consumption, for industry and for agriculture (KOWACO 2004, EHI 2008). Clearly, South Korea's rivers require management in accordance with the obligations of national conservation laws and international conventions, in line with national and international interest.

Against this background of difficult topography, very seasonal water flows, biodiversity of international importance and present essential uses, the recent central government plan to construct a nationwide system of shipping canals through the same river systems seems especially odd. The first stage alone, the Gyeongbu Canal, would require the creation and maintenance of a 300 m wide, 6 m deep, 553 km long canal along the course of the Han and Nakdong Rivers. While the lower stretches of the Han and the Nakdong are deeper and naturally wide, the mid- and upper-courses are very shallow and narrow with little water flow in winter, and linking the two would also require the construction of 75 km of waterway through mountainous terrain.

Perhaps due to its grand vision, the Korean Grand Canal Project was initially a popular component of the national election campaign in 2007. Proponents argued, and continue to argue, that the passage of 5,000 tonne ships "from sea to mountain to sea again" through the canal system

**Plate 3.** Baikal Teal *Anas formosa* flock by day, Geum River, January 2007.





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**Plate 4.** Baikal Teal *Anas formosa* by night, Geum River, December 2006.

would be environmentally friendly, as it would reduce movement of freight by road and rail; while the construction of inland ports would boost local economies.

However, concerned at the obvious economic and environmental costs, a highly vocal and effective coalition of “Anti-Canal” groups, including religious leaders was formed in late 2007. Data highlighting numerous flaws in the economic arguments behind the project have been published, whilst a basic assessment by Birds Korea in early 2008 indicates that at least seven of the listed Important Bird Areas (IBAs), including an existing Ramsar site (Upo), would be impacted by the Gyeongbuk Canal project. The highly seasonal water flow and the nature of both rivers is such that deep dredging and creation of permanent (concrete) channels would be necessary to allow year-round passage of commercial traffic. This would destroy the existing habitat used by species such as Long-billed Plover and Mandarin Duck.

Subsequent, even more ambitious phases of the project envisage linking the Yeongsan and the Geum Rivers to a national canal network, eventually extending through the Demilitarised Zone (DMZ) into the northern provinces of Korea. The completion of this system (over 3,100 km in length) would allow passage of sea-going vessels the length of the Korean

peninsula. Although much of this project is impossible without Unification, the second phase would greatly impact a further four or more IBAs within South Korea alone, leading to the possible extinction of several fish and declines in several bird species of special conservation concern. A canal would, for example, run through the Saemangeum reclamation area, preventing any possibility of maintenance of some tidal movement there, and further increasing impacts on shorebird populations. The same canal would then run through the Geum River, dissecting reed-fringed areas that presently support huge concentrations of Baikal Teal each winter. Away from the main rivers, the majority of remaining habitat used by the rather shy and charismatic Scaly-sided Merganser would be lost. The species typically winters on wider stretches of undisturbed river, with small rapids and shallows for feeding, and rocks and logs for roosting (Duckworth & Kim 2005). Human disturbance (adjacent construction work) has already more than halved the wintering populations in some remaining core areas (Park 2002).

Thanks to the strong opposition, the support of the Korean public for the Grand Canal Project has faded, and according to some sources, up to 85% of the population are now opposed to it. Criticism of this plan has not been confined to



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**Plate 5.** Mandarin Duck *Aix galericulata*, Han River, January 2007.

Korea, thanks to an international email campaign in March 2008, letters of concern sent by conservation organisations including the International Crane Foundation, Australasian Wader Studies Group and BirdLife International, and to the efforts of Korean NGOs who visited Europe in summer 2008 and held meetings with the Ramsar Secretariat in Switzerland, the RSPB and BirdLife International in the UK, and with Wetlands International in the Netherlands.

Apparently in response to the well-argued domestic and international concerns outlined above, central government took the bold and highly welcome step of suspending the Korean Grand Canal Project in early June 2008. Suspension, of course, is not the same as cancellation. It is now hoped that former proponents of the project will use the opportunity provided by the Ramsar conference in Changwon City (28 October–4 November) to demonstrate great leadership, by cancelling the project once and for all, so winning well-deserved national and international applause.

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**Plate 6.** Scaly-sided Merganser *Mergus squamatus*, Jiangxi Province, China, November 2007.

**Plate 7.** Scaly-sided Merganser *Mergus squamatus*, Jiangxi Province, China, November 2007.

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