

THE CHINESE-RUSSIAN ARGUN RIVER: A GLOBALLY IMPORTANT HABITAT FOR CRANES, GEESE, SWANS, AND OTHER BIRDS UNDER THREAT

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The Argun is located between Inner Mongolia Province of China and Chita Region of Russia. The Argun crosses transboundary Mongolian-Chinese-Russian Dauria steppe ecological region. Within the steppe zone (from 49°32' N, 117°50' E to 50°20' N, 119°22' E), the Argun has a very wide (6 km at average, 15 km at maximum) and wet valley about 150 km of length - this area is most important for waterbirds. The valley there includes wet sedge and cereal meadows and reeds. We observed this area 7 times from April to September during 2004-2007. The birds were counted from top of high hills on the Russian site using a binocular (X8) and a telescope (X15-75). The valley of the Argun is difficult for observation of waterbirds because of vast and high reeds hiding birds. Therefore, we were able to count from 10% to 60% of birds sitting on both Russian and Chinese sites of the valley. Accuracy of census depended on bird species, place, season and other circumstances. 260 local hunters and herders were questioned. Long term dynamics of the number of some species was restored as a result of analyzing the data from local people and literature (Gavrin, Rakov, 1960)

Present dry climatic period has a great influence on populations of waterbirds in Dauria ecoregion and on the Argun. In Dauria, some wetlands were dried up during 1996-1997; about 98% of steppe lakes became completely dry during 2000-2007 as a result of very strong summer droughts. Present dry period can continue up to 2015, it is a part of typical for Dauria 30-year duration climatic cycles with interchange of long term dry and wet periods. Previous dry period was finished in early 1980s. The Argun had flow from about 6.2 to 1.5 cubic km of water per year during the last 50 years; in 2004 it was about 3 cubic km, during 2005-2007 - about 1.5.

The Argun is of global importance for support and conservation of waterbirds in Asia. The Russian site of the Argun valley is included into the list of Important Bird Areas (IBAs). It is a key stopover site in the global East Asian Australian Flyway - about 2 million waterbirds stop on the Argun every year during spring migration. Geese, swans, ducks, terns and shorebirds are the most numerous migrants. The Argun supports important breeding habitats of cranes, geese, ducks, cormorants, herons, gulls, terns etc. For example, in June 2004, breeding density of terns (mainly White-winged Black Tern *Chlidonias leucoptera*) was about 800 birds per square km, the total number of terns was about 500 thousand, the total number of all breeding waterbirds - about 1 million. The number of many species of waterbirds decreased much during 2004-2007 mainly because of decreasing of water flow and drying up of wetlands. In 2007, the main part of the Argun valley was dry.

Six species of cranes were recorded on the Argun. The Red-crowned Cranes (*Grus japonensis*) probably were away from the Argun to late 1970s; they appeared there about early 1980s but were very rare until late 1990s; their number began to increase quickly since 2001-2002; during 2005-2007 the population decreased significantly. During field observation and questioning of local people in 2004, we recorded 26-37 breeding and non-breeding territorial pairs of Red-crowned Cranes on the Russian and Chinese sites of the valley, the total number was estimated as about 50 or more territorial families and about 30 summering non-breeding cranes staying in flocks (in total, it is about 5% of present world population). In 2007 the population was about 30-40% of 2004. White-naped Crane (*G. vipio*) is a breeding and summering species; 4 territorial pairs were recorded during 2004-2007 (breeding of 2 of them was confirmed); the total present estimated number is 10 territorial pairs and about 20 non-breeding birds. This crane was recorded on the Argun since the end of XVIII century as a rare or very rare species; during 1990-1994 it was very rare, the number increased in 1996 and in early 2000s. Common Crane (*G. grus*) is a migratory, summering and possibly rare breeding species - single birds and pairs stay on the Argun during summer; the total number of cranes gathered on the fields along the Argun during September 2007 was estimated as more than 300. Hooded Crane (*G. monacha*) is a

migratory and summering species - up to 8 non-breeders stay on the Argun valley during summer time, the total number of cranes gathered on the fields along the Argun river during September 2007 was estimated as more than 350 (about 3% of the world population). During 2004-2007 the number of White-naped, Common and Hooded Cranes was more or less stable. Siberian Crane (*G. leucogeranus*) is a very rare migratory and summering non-breeding species; in 2007 the number was higher than usual - two groups (3 and 11 birds) inhabited the Argun during summer. The main part of summering Siberian Cranes are impuberal (2-3 years old) birds with reddish feathers. Demoiselle Crane (*Anthropoides virgo*) is a common breeding species in steppes neighboring the Argun valley. Flocks of non-breeding Demoiselle Cranes (up to 18 birds together) inhabit the lakes in the valley during summer. The wheat crop fields located in Russia along the Argun are important gathering sites of the cranes during autumn. The cranes feed on the fields during morning and evening and have rest on wetlands (steppe and valley lakes) during noon and night. Big flocks (up to 3,000) stayed there from the end of August to the beginning of September of 2007; the total maximum number in 2007 was estimated as more than 10,000 birds (not less than 10% of East-Asian population). The number of gathering cranes increased quickly during 2000-2007 (in 1990s it was estimated as 1,000-1,500). Because of strong droughts, cranes change gathering sites (before 2000, Demoiselle Cranes concentrated mainly around the Torey lakes in Russia - up to 42,000 birds in 1990s).

Tundra Swan (*Cygnus columbianus/bewickii*) is a very numerous spring migratory species at present time. They were numerous on the Argun in 1950s, rare or common in 1980s; since 1994 the number increased quickly. In 2005-2007 about 10,000-12,000 birds migrated through the Argun during spring time (it is more than 10% of East-Asian population). Whooper Swan (*C. cygnus*) is a not numerous migratory and very rare breeding species. During spring 2007, Tundra Swans comprised 99% and Whooper Swans 1% of the total number of migratory Swans (1978 swans were observed).

Five species of geese were recorded. Bean Goose (*Anser fabalis*) is a very numerous during spring passage. In 2005-2007, the forest subspecies *A. f. middendorffii* made 81% and tundra subspecies *A. f. serrirostris* - 19% of total number of Bean Geese (the subspecies was distinguished for 42 birds of Bean Geese). About 20,000 birds gather on the Argun and stay there during every April and May - it is about 13% of the present total world number of *A. f. middendorffii* and *A. f. serrirostris*, estimated as 80,000 and 70,000 birds (Wetlands International, 2006). The geese feed on the crop fields (usually - wheat) and rest in the river valley. Until early 2000s, geese gathered on the Russian fields, during the last years they change feeding places - in 2007 the main part of geese fed on Chinese fields. The former number of Bean Goose (up to late 1950s) on the Argun was about 10 times higher than at present; the number decreased quickly in 1960-1970s; during 1980-1990s it was more or less stable; it slowly increased during 2000-2007. Swan Goose (*A. cygnoides*) is a migratory, breeding and summering species. About 2,000 birds gather on the Argun during spring migration (it is 2-3% of the world population). The estimated number of breeding pairs is 150, it was more or less stable during 2004-2007. At the same time the number of summering non-breeding birds increased about 5 times, it was estimated as 100-150 birds in 2004 and 500-650 birds in 2007. Significant decreasing of the number of Swan Geese on the Argun (and in all Daurian steppes too) was in 1940s; in late 1950s they bred in the Argun valley regularly but were rare (the number of the population probably was only about 10-20% of the present one); during 1970s they were rare too; the number began to increase in early 1980s, significant increasing occurred in 1996 and during 2000-2007. Greylag Goose (*A. anser*) is a migratory, breeding and summering species. About 1,500 birds gather on the Argun during spring migration (it is 2-3% of East-Asian population). The number of breeding geese was decreasing during 2004-2007 - it was estimated as about 200 families in 2004 and 100 in 2007. Non-breeding summering geese disappeared during 2004-2007 - their number was estimated as about 1,000 birds in 2004, in 2007 they were not recorded. In late 1950s Greylag Geese very rarely bred in the Argun valley, the number of this species was less than that of Swan Geese; from late 1980s to late 1990s it was a common breeding and summering species (its number was much higher than that of Swan Geese); the number began to decrease quickly since 2000s. White-fronted Goose (*A. albifrons*) and Lesser White-fronted Goose (*A. erythropus*) are rare (in some years - common) migratory species (in 1950s White-fronted Goose probably was numerous during spring migration).

11 globally threatened species of birds were recorded on the Argun. It is important habitat of many of them. For example, it is key migratory site of Great Bustard *Otis tarda*. Not less than 300 bustards migrate there every spring - it is about 19% of the world population of the eastern subspecies *O. t.*

dybowskii, estimated as 1500-1700 birds (Goroshko, 2000). Baikal Teal (*Anas formosa*) was a very numerous (especially during southward passage) migratory duck on the Argun until 1960s; the population decreased very quickly in 1960-1970s – the species almost disappeared and became a very rare occasional visitor; since 2000 the number is increasing very slowly; the maximal number was recorded in 2007 (up to 9 birds in one flock during spring migration and 42 during autumn).

Long term dry climatic periods are dangerous for waterbirds. They create especially big problem for species preferring very wet habitats (Red-crowned Crane, Greylag Goose); populations of these birds decreased much because they had lost the main part of needed wetlands. Species using not very wet habitats (White-naped Crane, Swan Goose) are able to find suitable wetlands on the Argun even during the droughts. Populations of these species are stable or increase during dry years because of moving of birds to the Argun from dry Daurian steppe lakes. The Argun wetlands have comparatively stable hydrological regime and do not dry up completely. Therefore, the upper Argun is of key importance for support and survival of waterbirds during critically unfavorable long dry climatic periods - waterbirds gather from Daurian steppes to the Argun for summering and breeding; the Argun becomes also a key resting site for migratory waterbirds. The main anthropogenic threats for waterbirds on the Argun are: 1) very often spring grassfires in the valley (about 60-70% of wetlands on the Russian site of the Argun are burned every year; in China grassfires are rare); 2) intensive hunting and poaching in Russia (for example, the number of shot geese during the spring 2005 was estimated as about 4,300 Bean Geese, 400 Swan Geese and 300 Greylag Geese); 3) very strong poisoning of water by Chinese factories (the Argun is one of the most poisoned rivers in the Amur basin); 4) intensive egg collection by Chinese people (for example, Chinese people illegally crossing the state border collected on the Russian territory up to 5,000 eggs at one place); 5) too intensive fishing by Chinese people. A huge potential threat is planned by the Chinese Government very dangerous project of Hailaer-Argun river water-diversion (to Dalainor lake). It is planned to diverse about 1 cubic km (up to 1.5 cubic km) of water per year. Our investigations show, the project will result in huge damage to waterbirds on the Argun and Daurian transboundary ecoregion. The project will have especially dramatic influence during dry climatic periods because the Argun wetlands will dry up.

The Argun is an internationally important habitat of some globally threatened species (mainly of Red-crowned Crane, Swan Goose, Great Bustard) and many other birds. Since 2005, the Russian Government is working much for establishing a nature reserve on the Argun. It is planned to enlarge the Daurian State Nature Biosphere Reserve - it will include all important Argun wetlands on the Russian site. It is proposed to enlarge the Chinese Dalay Lake National Nature Biosphere Reserve by including Chinese wetlands on the Argun too. The Daurian and Dalay Lake reserves are parts of the Dauria International Chinese-Russian-Mongolian Nature Protected Area. It is proposed to include the Argun in the Dauria International Nature Protected Area.

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