

SPECIES REVIEW:

HOODED CRANE (*Grus monacha*)

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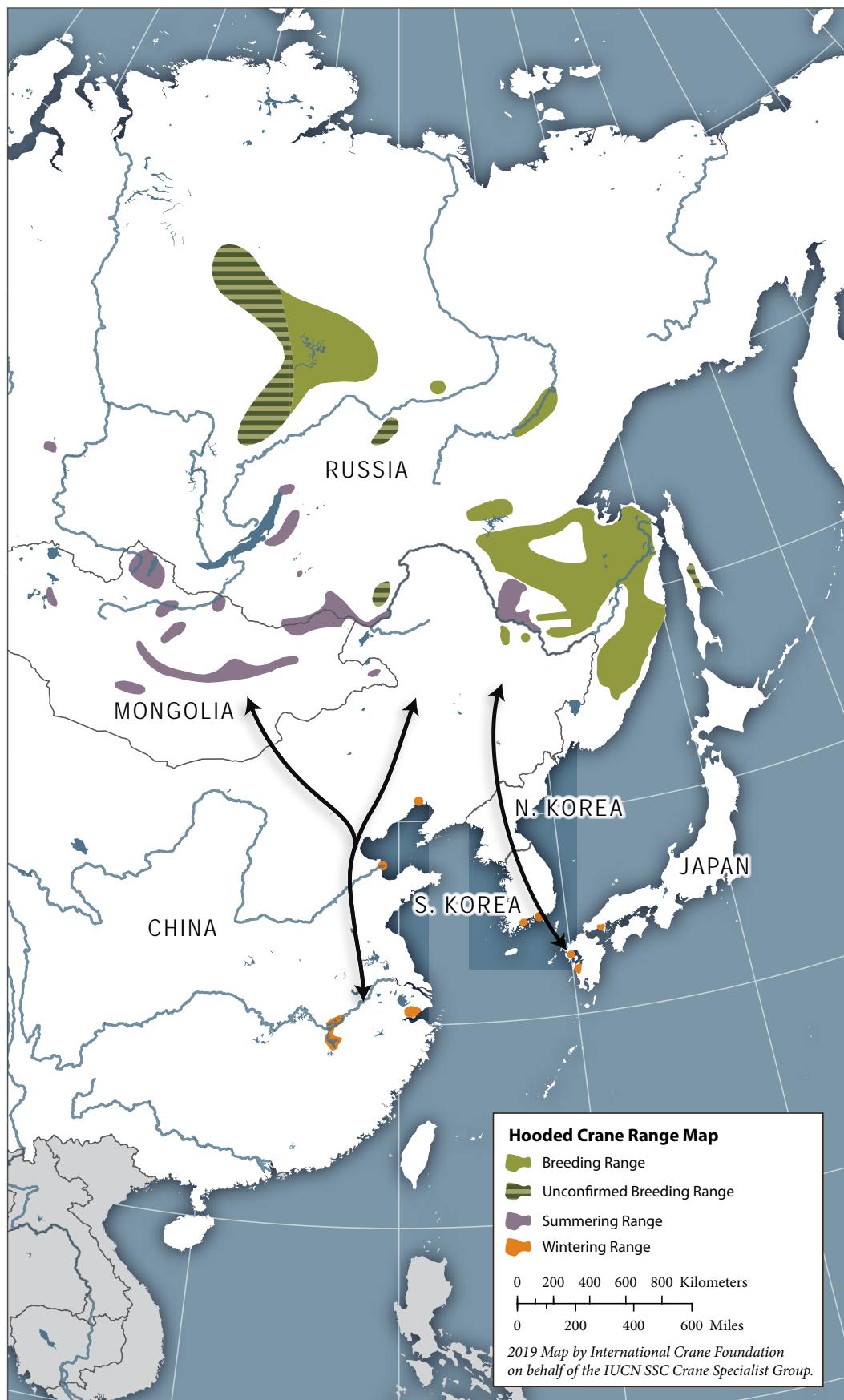
Hooded Crane teaching its chick to forage (Photographer: Ted Thousand, International Crane Foundation)

Red List Category: Vulnerable

Population Size: 14,500–16,000

Population Trend: Increasing

Distribution: Northeast Asia, China, Japan



DISTRIBUTION AND STATUS OF KEY SITES

Subspecies/Populations

The Hooded Crane is a monotypic species. Almost yearly a few hybrids between Hooded and Eurasian Cranes are sighted on the wintering grounds (Haraguchi 2014). Annually from one to six mixed pairs of Hooded and Eurasian Cranes with hybrid offspring are spotted at the staging area at Muraviovka Park in Russia (Sergei Smirenski, personal comm. 2016) during the fall migration.

DNA analysis reveals close relationships to the Black-necked Crane (Krajewski et al. 2010).

Overall Range

Almost the entire breeding range is located in Russia, where the breeding grounds extend across an interrupted strip from the north of Central Siberian Plateau in Yakutia to Middle Sikhote-Alin Range in the Russian Far East (Neufeldt 1977, Flint 1987, Andronov et al. 2009). In Yakutia (Republic of Sakha) there are four breeding flocks in the Middle Lena River Basin, which are located in Central Siberian Plateau in Upper Vilyui River, Middle Aldan River, Chara River Basin on the Olekma-Chara Plateau, and Makharchan River Basin (Lena River tributary) (Germogenov 2001, Labutin 2003, Degtyarev et al. 2011). It is estimated that 7–9% of the world population breeds in the Lena River Basin, according to counts of migrating birds in the Amur Basin (Degtyarev 2000). The biggest breeding flock probably inhabits the Upper Vilyui Basin, while in the Middle Aldan River a breeding flock estimated at 100 pairs was discovered recently (Degtyarev et al. 2011). Other breeding groups are not significant with small numbers of pairs (Degtyarev et al. 2011).

The other big breeding area covers the Middle and Lower Amur River Basin (Amur and Khabarovsk Provinces and Jewish Autonomous Province) (Smirenski and Smirenski 1980, Smirenski and Roslyakov 1982, Andronov et al. 2009, Averin 2011), and Bikin and Iman River Basins as well as river basins that flow into the Japanese Sea, with the main group in Samarga River Basin (Primorsky Region) (Surmach and Shabayev 2015). There are some suspected breeding sites in taiga in the north of Zabaikalye Region (Goroshko 2012), in the northeast of Irkutsk Region (Popov 2010), and in Krasnoyarsk Region (Savchenko and Savchenko 2012), but nests were not discovered. In northeastern China there are two breeding flocks in Lesser Khingan Mountains in Heilongjiang Province with an estimated total number of 500 breeding pairs (Guo 2007, 2014). Breeding has not been confirmed in Mongolia (Nyambayar Batbayar, personal comm. 2015).

Over 30% of the world population of Hooded Cranes gather for a month in spring and for 1.5 months every autumn in the main staging area in Russia—the southern part of Zeya-Bureya Plain in the Amur Province. More than 3,000 Hooded Cranes were recorded during one survey in 2015 in Muraviovka Park and Amurski Game Refuge (Smirenski and Smirenski 2016). Cranes roost and feed at additional places near these two protected areas. In 2016, over 2,000 Hooded Cranes were recorded at two roosting sites in Muraviovka Park and over 700 cranes at another site within 4 km east of the park (Sergei Smirenski, personal comm. 2016).

Most of the global population migrates through the Korean Peninsula along the west coastal area or along the Nakdong River, resting for short periods of time in wetlands in Democratic People's Republic of Korea (North Korea) (Chong 1994). Most Hooded Cranes continue their journey to Izumi in the southern Kyushu Island in Japan. Gumi Haepyung wetland was the most important stopover site during autumn migration and Cheonsu Bay was the most important during spring migration. Other stopover sites in Korea included the Nakdong and Han River estuaries and Ganghwado (Lee 2014). Some cranes stop for winter in Suncheon Bay, and their number has increased during the last ten years (Lee 2015). Cranes from western parts of the breeding grounds of Russia migrate to Republic

of Korea (South Korea) and Japan through northeastern China (Chong 1994). Recent investigations have indicated that cranes breeding in China may also migrate to Japan for winter (Guo 2015).

The lesser part of the world population migrates through northern China and eastern Inner Mongolia to the Middle Yangtze River Basin, reaching their wintering grounds at Poyang Lake, Shengjin Lake, Chongming Island, occasionally in Hubei, and a few at Dongting Lake. Shengjin Lake had the largest winter population of this species, but in recent years it seems many have shifted to Poyang Lake for winter. The most important migration stopover in China is located in Lindian County in Heilongjiang Province, on the east side of Zhalong Marsh (Guo et al. 2004, Luo et al. 2012). Other sites include Tumuji (Inner Mongolia), Xianghai (Jilin Province), and Huanzidong Reservoir (Liaoning Province). Bohai is believed to be important but needs further investigation (Liying Su, personal comm. 2016).

A small number of non-breeding Hooded Cranes spend the summer in Mongolia, Russia (Zabaikalsky and Amur Provinces, and the Republic of Buryatia), and in China (Inner Mongolia Province).

ECOLOGY

During the breeding season, Hooded Cranes are very secretive, nesting and feeding mostly in remote bogs throughout the taiga in Russia and in wetlands in the mountain valleys of China. They tend to avoid areas that are heavily forested or very open. These breeding areas are not usually suitable for agriculture or other development, and this species' habitat has been much less affected than breeding areas for Red-crowned and White-naped Cranes.

The Hooded Crane uses a wide variety of habitats during migration and in winter months, such as grasslands, wetlands, and agricultural fields. It is less aquatic than Siberian, Red-crowned, or White-naped Cranes and readily forages in croplands (Meine and Archibald 1996). Muraviovka Park and Amurski Game Refuge in the Amur Province of Russia (Sergei Smirenski, personal comm. 2016) and Lindian (the east side of Zhalong Marsh) in China provide safe roosting areas for migrant cranes that visit nearby farmlands during the day.

NUMBERS AND TRENDS

The Hooded Crane is listed as Vulnerable. Its number has increased from 9,600, estimated in the 1990s (Meine and Archibald 1996), to an estimated 14,500 to 16,000 in winter 2014–15. About 80% of the world population winters in Japan, almost all at Izumi in Kagoshima Prefecture of Kyushu Island. In winter 2017–18, about 14,000 Hooded Cranes were counted in Izumi (Yuko Haraguchi, personal comm.). A small number of cranes (less than 10 individuals) winter at Shunan (Yamaguchi Province) and Isahaya (Nagasaki Province) (Haraguchi 2015). About 100 Hooded Cranes spent the winter in Shikoku in 2014–15 (Yuko Haraguchi, personal comm. 2016). In 2017–18, about 1,700 wintered in the coastal wetlands of Suncheon Bay in Republic of Korea, an increase from about 200 in 1996 (Yuko Haraguchi, personal comm.). Guo (2014) estimated 1,500 wintering birds in China, while Shengwu Jiao estimated 1,000 to 1,150 (personal comm. 2015).

The wide range in the current population estimate reflects the difficulty of counting the dense flocks of cranes at Izumi and the lack of recent range-wide winter counts for China.

THREATS

- In Yakutia, a part of breeding habitats were flooded after construction of the Vilyui Hydro Power Plant, and in Upper Vilyui River Basin an industrial development is maintained (Germogenov 2001);

- Many wetlands are being drained for agricultural purposes, and changes in agricultural land use degrade crane habitat;
- Forest fire is a significant threat on the breeding grounds (Andronov et al. 2009);
- Human disturbance and fish nets prevent cranes from using otherwise suitable habitats;
- Conflicts with farmers from eating corn (maize, *Zea mays*) in autumn and pulling corn seedlings in spring (Guo 2014);
- Poaching at stopover sites (Germogenov 2001, Goroshko 2012, Guo 2014);
- Deteriorating water quality in the coastal waters and along the Yangtze River at major wintering areas in China is reducing the availability of preferred foods such as tubers of *Vallisneria* and other aquatic plants (Fox et al. 2010);
- Dams and diversions of water, such as the Three Gorges Dam, alter critical wetland habitat, including Poyang Lake in China;
- Loss of migratory habitat due to removal of sand bars from the migration route along the Nakdong River and coastal area development along the western coastline in Republic of Korea (Lee 2014);
- Development (greenhouses, power lines, etc.) in the buffer zone adjacent to the core wintering area at Suncheon Bay in Republic of Korea. Although a commercial building was removed from the core area, another commercial building was constructed in the buffer zone for servicing increasing numbers of visitors;
- Tourism impacts are rapidly growing at Suncheon Bay in Republic of Korea, and additional protection is needed for foraging sites in the buffer area;
- Through the “Four Rivers Project,” a key winter roosting site in Republic of Korea was lost to dredging of sandbars at the Haepyong wetland near Daegu (Soodong Lee, personal comm. 2015);
- Land development, most notably development proposed in the Korean DMZ/Han River basin;
- The Japanese wintering population (80% of the world population) is highly concentrated during night roosting in Izumi on a 104-ha protected area in response to artificial feeding and loss of alternate wintering sites, raising concerns about the spread of disease through the population. Although avian influenza (HPAI) virus occurrences have not caused significant numbers of crane deaths, this risk is still a serious problem for both cranes and people because poultry farming is the major industry of Izumi city (Haraguchi 2015); and
- Artificial feeding is increasing at Suncheon and leading to similar risks from disease and competition as at Izumi; and
- A potential future threat from a strong competitor for habitat—the Sandhill Crane. This species is expanding its breeding range west- and southward in northeastern Russia and some are now wintering in Japan and China.

CONSERVATION AND RESEARCH EFFORTS UNDERWAY

- Investigation of breeding grounds in Middle Aldan River was conducted in Yakutia (Degtyarev et al. 2011);

- Monitoring cranes and their key wetlands in the Amur/Heilong River basin (the areas observed are migratory stopovers, not breeding sites);
- Consulting by domestic and international experts for crane conservation in the DMZ/Han River Basin of Korean Peninsula, areas that provide significant migratory habitat;
- Ongoing research, management, and technical assistance by nature reserve management authorities and domestic and international experts for the Poyang Lake ecosystem (Li et al. 2012); the International Crane Foundation is working with Poyang Lake and Nanjishan National Nature Reserves on sublake and visitor management as well as community awareness;
- A workshop on “Conservation and International Cooperation for Hooded and White-naped Cranes” held in Japan provided updates on current population surveys, banding, range, and habitat assessments, and migration stop-over and wintering range (Korea and Japan) conservation actions;
- The Hooded and White-Naped Cranes International Network was established in Faku (Liaoning Province, China) in 2015;
- Muraviovka Park and Amurski Wildlife Refuge in the Amur Province of Russia provide safety at this important staging area from mid-August through October to over 30% of the world population of the species (Smirenski and Smirenski 2016); Muraviovka Park plants corn fields to divert cranes from agricultural crops and keep the cranes inside the protected area;
- BirdLife International and the Wild Bird Society of Japan, cooperating with Korean conservationists from several institutions, are attempting to work with government agencies on dispersal of wintering cranes (government is careful to avoid steps that might result in cranes dying in public view, and most communities do not want cranes);
- A Memorandum of Understanding on cooperation in crane conservation and environmental education was signed by the Mayor of Suncheon City, Vice Mayor of Izumi Cite, Director of Dazhanhe Nature Reserve, and President of Muraviovka Park;
- A tiny and dwindling winter crane population at Yashiro, Japan is artificially fed; local conservationists work to keep them returning to this location;
- Dr. Guo Yumin of Beijing Forestry University has studied Hooded Crane breeding areas in Heilongjiang and encouraged establishment of protected areas and improvements in management. He has established an international non-governmental organization for Hooded Crane conservation, registered in Britain; the organization is running a small research grant program in China; and
- Crane monitoring in Republic of Korea has been conducted by local volunteers, bird watchers, and researchers, but only at some important areas due to limited funds, with annual meetings to exchange information (Lee 2014).

CHANGES SINCE 1996

The total population has increased from 9,600 to 14,500–16,000 individuals. Counts at Izumi indicate crane numbers increasing from near 10,000–12,000 in 2008–2013 to 13,500 in winter 2014–15 (Haraguchi 2015).

Notable expansion of the species has occurred to the east (to the eastern slopes of the northern Sikhote-Alin Mountains and presumably to Sakhalin Island). Hooded Crane distribution is

determined by distribution of larch (*Larix*), thus excluding expansion of the breeding area to the south (Meine and Archibald 1996). The potential for area expansion to the east is almost exhausted, as the species has occupied almost all optimal habitats in central and eastern Sikhote-Alin Mountains, up to heights of 700–800 m above sea level. Only Sakhalin Island remains vacant, where Hooded Cranes have been sighted but not seen breeding (Surmach and Shibayev 2015).

The number of Hooded Crane sightings has increased on the breeding grounds due to increasing crane numbers as well as attention to this species by scientists.

This species has the best prognosis of the threatened cranes in East Asia and has been increasing under current levels of conservation effort, although natural habitats for migratory stopovers and wintering are extremely limited for Korea/Japan.

PRIORITY RESEARCH AND CONSERVATION ACTIONS

- Study and evaluate action needed to mitigate effects of dams and diversions (the threat on the breeding grounds is less severe than for the White-naped or Red-crowned Cranes);
- Use banding and telemetry studies to identify major breeding sites, staging sites, migration routes, and links between breeding and wintering sites. Increase band monitoring in Japan and Korea;
- Expand and designate new protected areas;
- The most urgent actions are to secure and expand suitable wintering habitats in Japan and Korea, in part to avoid risks of disease or other catastrophe;
- It is important that the dispersed population wintering in China continues to thrive and have suitable habitats available;
- Conduct intensive monitoring of disease risk and incidence and develop a proactive mitigation plan for response to disease threats;
- Understand the movement of this species among wintering areas within the lower and middle Yangtze and conduct a study comparing use of winter habitats;
- In Republic of Korea, continue conservation action focused on the core zone at Suncheon Bay and establish a program to prevent or mitigate development in the buffer area;
- Investigate options to develop a site restoration plan for destroyed roosting and foraging habitat at the Haepyong wetland;
- Although data are available on wintering numbers, population fluctuations, and habitat use characteristics, there is a need to collect basic data on movement patterns among wintering sites, food preferences, and behavior; and
- Continue and expand programs to prevent and suppress forest fires in breeding areas.

REFERENCES

- Andronov VA, Andronova RS, Parilov MP. 2009. The Hooded Crane *Grus monacha* (Temminck, 1835). Red Data Book of the Amur Province: rare and threatened animals, plants and mushroom (official issue). Department on Protection, Control and Regulation of Wildlife Use of Amur Province. Blagoveshchensk, Russia: Blagoveshchensk Pedagogical University. p 107–108.
- Averin AA. 2011. The crane status in Jewish Autonomous Region. In: Ilyashenko EI, Kovshar AF, Winter SV, editors. Cranes of Eurasia (Biology, distribution, migrations, management), 4. Moscow, Russia: Rosselkhozacademia. p 131–120.
- Chong J. 1994. The migration routes and important rest-sites of cranes on the Korean Peninsula. In: Higuchi H, Minton J, editors. The future of cranes and wetlands. Tokyo, Japan: Wild Bird Society of Japan. p 41–50.
- Degtyarev VG. 2000. Current information about special protected birds of Middle Lena River Basin. In: Zubakin VA, editor. Rare, endangered and poorly known birds of Russia. Moscow, Russia: Russian Bird Conservation Union. p 40–44. (In Russian.)
- Degtyarev VG, Pshennikov AE, Okoneshnikov VV, Egorov NN, Sleptsov SM. 2011. Preliminary assessment of the Hooded Crane status and wetland structure along Siberian Crane eastern population flyway in the Middle Aldan River Basin. In: Ilyashenko EI, Kovshar AF, Winter SV, editors. Cranes of Eurasia (biology, distribution, migrations, management), 4. Moscow, Russia: Rosselkhozacademia. p 235–246.
- Flint VE. 1987. The Hooded Crane. In: Illichev VD, Flint VE, editors. Birds of the USSR. Galliformes. Gruiformes. Leningrad, USSR: "Nauka" Publishing House. p 289–296.
- Fox AD, Cao L, Zhang Y, Barter M, Zhao M, Meng F, Wang S. 2010. Declines in the tuber-feeding waterbird guild at Shengjin Lake National Nature Reserve, China – a barometer of submerged macrophyte collapse? Aquatic Conservation: Marine and Freshwater Ecosystems 21(1):82–91.
- Germogenov NI. 2001. Current situation for the protection and research of cranes in Yakutia. Information Newsletter of the Crane Working Group of Eurasia 2:15.
- Goroshko OA. 2012. The Hooded Crane. In: Vishnyakov EV, Tarabarko AN, Kirilyuk VE, editors. Red Data Book of Transbaikalia. Novosibirsk, Russia: Novosibirsk Publishing House, Ltd. p 122–123. (In Russian.)
- Guo Y. 2007. Research on breeding habit of Hooded Crane in Xiaoxingan Mountains, China. Newsletter of the Crane Working Group of Eurasia 10:20–22.
- Guo Y. 2014. The status of cranes in China and its challenges. In: Haraguchi Y, editor. The Status of Cranes in North-East Asia and Our Challenge. Kagoshima Prefecture, Japan: Izumi City Museum Crane Park. p 8.
- Guo Y. 2015. Hooded Crane flyway study. In: Ilyashenko EI, Winter SV, editors. Cranes of Eurasia (biology, distribution, captive breeding), 5. Moscow, Russia: "Bely Veter" Publishing House. p 355.
- Guo Y, Hou Y, Dai M, Fu J, Bian H. 2004. Lots of Hooded Cranes stopped over Lindian, Heilongjiang, China, in 2004 autumn. China Crane News 8 (2):15–16. (In Chinese with English abstract.)
- Haraguchi Y. 2014. Crane censuses including White-naped Crane count at Izumi, Japan, in winter 2013/2014. Newsletter of the Crane Working Group of Eurasia 13:75–77.
- Haraguchi Y. 2015. Crane status in Izumi. In: Ilyashenko EI, Winter SV, editors. Cranes of Eurasia (Biology, distribution, captive breeding), 5. Moscow, Russia: "Bely Veter" Publishing House. p 344–351.

- Krajewski C, Sipiorski JT, Anderson FE. 2010. Complete mitochondrial genome sequences and the phylogeny of cranes (Gruiformes: Gruidae). *Auk* 127(2):440–452.
- Labutin YV. 2003. The Hooded Crane. In: Alekseev VG, editor. Red Data Book of Sakha Republic (Yakutia). Vol. 2: Rare and Endangered Animals (invertebrates, fishes, amphibians, reptilian, birds, and mammals). Ministry of Nature Conservation of Republic Sakha (Yakutia), Department of Biological Resources. Yakutsk, Russia: Sakhapoligraphizdat. p 208.
- Lee K. 2014. Crane status in Korea. In: Haraguchi Y, editor. Conservation and international cooperation for Hooded and White-naped Cranes. Kagoshima Prefecture, Japan: Izumi City Museum Crane Park. p 14.
- Lee K. 2015. Changes in crane wintering in the Republic of Korea. In: Ilyashenko EI, Winter SV, editors. Cranes of Eurasia (Biology, Distribution, Captive breeding), 5. Moscow, Russia: "Bely Veter" Publishing House. p 356.
- Li F, Wu J, Harris J, Burnham J. 2012. Number and distribution of cranes wintering at Poyang Lake, China during 2011–2012. *Chinese Birds* 3(3):180–190.
- Luo J, Wang Y, Yang F, Liu Z. 2012. Effects of human disturbance on the Hooded Crane (*Grus monacha*) at stopover sites in northeastern China. *Chinese Birds* 3(3):206–216.
- Meine CD, Archibald GW, compilers. 1996. The cranes: Status survey and conservation action plan. Gland, Switzerland: International Union for Conservation of Nature and Natural Resources. 282 p.
- Neufeldt IA. 1977. Distribution range of the Hooded Crane in the light of existing data. In: *Ornitologia* 13. Moscow, USSR: Moscow State University. p 56–61. (In Russian.)
- Popov VV. 2010. The Hooded Crane. In: Gaikova OY, Popov VV, editors. Red Data Book of Irkutsk Province. Irkutsk, Russia: "Vremya Stranstviy" Publishing House. p 398. (In Russian.)
- Savchenko AP, Savchenko IA. 2012. The Hooded Crane. In: Savchenko AP, editor. Red Data Book of Krasnoyarsk Province. Vol. 1. Krasnoyarsk, Russia: Siberian Federal University. p 88. (In Russian.)
- Smirenski SM, Roslyakov GE. 1982. Current status of crane nesting grounds in the Amur Basin. In: Neufeldt IA, editor. Cranes of East Asia. Vladivostok, USSR: Crane Working Group of the USSR. p 12–17. (In Russian.)
- Smirenski SM, Smirenski EM. 1980. On some rare and poorly known birds of the Jewish Autonomous Region (Khabarovsk Province). In: *Ornitologia* 15. Moscow, USSR: Moscow State University. p 205–206. (In Russian.)
- Smirenski SM, Smirenski EM. 2016. Muraviovka Park in 2015. ZHURAVL: A newsletter of Friends of Muraviovka Park. February 2016. p 3.
- Surmach SG, Shibayev YV. 2015. The Hooded Crane in the south-east of the area. In: Ilyashenko EI, Winter SV, editors. Cranes of Eurasia (Biology, distribution, captive breeding), 5. Moscow, Russia: "Bely Veter" Publishing House. p 254–257.

