

Strong call to safeguard traditional agriculture as habitat for threatened crane species

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Funding information

Marianne und Dr. Fritz Walter Fischer-Stiftung; Zempelin Stiftung

KEYWORDS: Gruidae, *Grus japonensis*, *Grus vipio*, human-wildlife coexistence, human-wildlife interaction, net-map, stakeholder analysis

The Cheorwon Basin in the Civilian Control Zone (CCZ) of the Republic of Korea (ROK) hosts the most important wintering site of two threatened crane species, the white-naped crane (*Grus vipio*) and the red-crowned crane (*Grus japonensis*). Both species predominately use harvested rice paddy fields as foraging sites (Kim et al., 2016). In 2019, we carried out a stakeholder analysis (Jin et al., 2021) revealing that local initiatives had successfully engaged farmers in conserving crane habitat on their fields, in part through the provision of direct and indirect financial incentives. Yet it proved challenging to engage stakeholders critical of crane conservation in our research (e.g., the military or firms interested in agricultural/ industrial development of the area).

Here we summarize the changes in policy and practice of crane conservation that have occurred in the

three years following our initial research. We report these insights based on expert interviews conducted in 2022 with a local farmer representative (I#1), and a local and international crane conservation specialist (I#2, I#3).

At national level, the Biological Diversity Act (2002) was revised in 2019 allowing for the possibility of the private sector to co-finance the ROK government's system of Payment for Ecosystem Services (PES). The National Nature Trust owns a legal foundation to operate PES and has expressed interest in extending the payments to crane conservation (I#3). While the system of PES was already in place in other regions of ROK, enhanced funding by the local government and the Ministry of Environment allowed for its initiation in the Cheorwon Basin. Farmers now receive government payments for specific biodiversity-friendly methods. These

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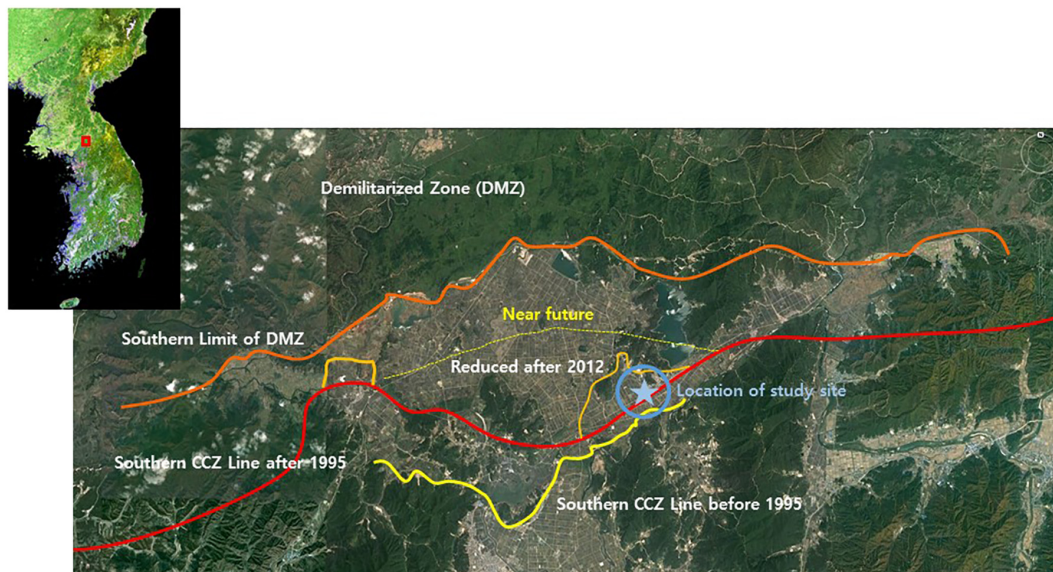


FIGURE 1 Map of the study area indicating changes in the extend of the Civilian Control Zone.

include the restricted use of pesticides, leaving leftover grains on the field and keeping rice fields flooded throughout winter in order to provide foraging and roosting habitat for cranes (I#2).

According to a local farmer representative, the process of engaging in interviews for our initial publication and thereby expressing diverse opinions increased trust relations, and respect among members of the Crane Coordinating Committee. Yet communication with stakeholders outside the committee is still perceived as challenging. (I#1).

The International Crane Foundation has started a new project centered upon Cheorwon with the major components being citizen science, outreach to stakeholders and policy-makers, strengthening networks for crane conservation and education, and awareness raising for example, by initiating a local crane festival which can attract tourists to the region (I#2).

The Cheorwon Basin is the only area in the ROK, in which low-intensity rice farming is still practiced and crucial roosting and foraging habitat for cranes are secured. Plans to protect the site and the traditional farming practices by establishing a nature reserve have not yet been successful (Kim et al., 2011). This means that the current state of successful cooperation between farmers and crane conservation largely depends on military land-use restrictions that have become less strict in recent years. The size of the CCZ has decreased (Figure 1) and even within the remaining area, greenhouses and ginseng farms have rapidly expanded while the pressure for further economic development persists.

AUTHOR CONTRIBUTIONS

Karoline Hemminger: Conceptualization (lead); Conducting Interviews, Interview Analysis (lead); Writing-original draft (lead); Writing-review and editing (lead). **Hyeyeon Sarah Jin:** Conducting Interviews (lead); Writing-review and editing. **Spike Millington, Jongsoo Choi:** Writing-review and editing. **Kisup Lee:** Visualization; Writing-review and editing. **Claudia Sattler:** Conceptualization, Visualization (lead), Writing-review and editing.

CONFLICT OF INTEREST STATEMENT

The authors declare that there is no conflict of interest.

ACKNOWLEDGMENT

Open Access funding enabled and organized by Projekt DEAL.

DATA AVAILABILITY STATEMENT

The interview transcripts are not available because they include clear names of individuals mentioned during the interview conversations as well as sensitive information which may allow to guess the identity of the interviewees.

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How to cite this article: Hemminger, K., Jin, H.-S., Millington, S., Lee, K., Choi, J., & Sattler, C. (2023). Strong call to safeguard traditional agriculture as habitat for threatened crane species. *Conservation Science and Practice*, 5(6), e12925. <https://doi.org/10.1111/csp2.12925>