East Asian buntings: Ongoing illegal trade and encouraging conservation responses

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Abstract
The dramatic decline in the once superabundant Yellow-breasted Bunting Emberiza aureola, a widely distributed Eurasian songbird, triggered worldwide media interest. Five years after the initial publication, we set out to give an update on the status of this critically endangered species, the conservation actions that followed, and the lessons that can be learned from this exceptional case for the conservation of migratory land birds in Asia and beyond. While there are signs of possible population recovery in the Yellow-breasted Bunting, other migratory songbird species were recently observed to be trapped in huge numbers, which could lead to further declines. We argue that the Yellow-breasted Bunting can be used as a flagship species to promote the conservation of East Asian land bird migrants.

KEYWORDS
China, East Asian flyway, Emberiza aureola, flagship species, persecution, population decline, songbird, trapping, Yellow-breasted Bunting

1 | INTRODUCTION

The Yellow-breasted Bunting (Emberiza aureola) was once one of the most abundant songbirds of the Palearctic, but declined by 84.3–94.7% between 1980 and 2013, accompanied by a range contraction of 5,000 km (Kamp et al., 2015). The decline was attributed to illegal, widespread, and large-scale hunting in China for human consumption. The rapid decline of such a common species over huge areas was considered unprecedented in human memory, with exception of the well-known fate of the Passenger Pigeon (Ectopistes migratorius) of North America (Bucher, 1992). The publication of the precipitous decline triggered considerable media interest that led to immediate conservation responses on the ground. Five years after the initial publication in Conservation Biology, we here provide an update on the status and conservation of this much-depleted species, examine the status of related, persecution-prone bunting species, and identify priorities for research on and the conservation of East Asian land birds.

2 | ONGOING TRAPPING AND TRADE

Since the publication of the magnitude of the decline and its potential main driver (Kamp et al., 2015), information on further incidents of illegal trapping in China surfaced,
suggesting ongoing illegal persecution (summarized in Table 1, Figure 1). The trade still seems to be an industrial-scale business: Commercial facilities buy Yellow-breasted Buntings from local fowlers, fatten them up with chemical fattening agents, and sell them to buyers from restaurants in South China (Tencent QQ News, 2016).

| Date                  | Site                        | N   | Lat   | Lon   | Comments                                              | Source                                                                 |
|-----------------------|-----------------------------|-----|-------|-------|-------------------------------------------------------|------------------------------------------------------------------------|
| November 7, 2019      | Harbin, Heilongjiang, China | 82  | 45.75 | 126.63| Dead birds confiscated in shop                        | Xiancn News, November 7, 2019, http://news.xiancn.com/content/2019-11/07/content_3517577.htm |
| November 4, 2019      | Bayan, Heilongjiang, China  | 3   | 46.35 | 124.00| Confiscated                                           | BJ News, November 4, 2019, http://www.bjnews.com.cn/news/2019/11/04/645447.html |
| September 13, 2019    | Tangshan, Hebei, China      | 12,000 | 39.63 | 118.17| Confiscated live birds in fattening center           | Weibo News, September 14, 2019, https://card.weibo.com/article/m/show/id/230940441709562559492 |
| September 10, 2019    | Panjin, Liaoning, China     | 1   | 41.11 | 122.06| One male for sale in shop                            | K. Helmbrecht in litt.                                                 |
| September 5, 2019     | Linghai, Liaoning, China    | 12  | 41.11 | 121.14| Found in illegal mist-nets                           | 360kuai.com, September 12, 2019, https://www.360kuai.com/pic/9d0e9d45f991b31a%cota=3%kuai_so=1&sign=360_e39369d1 |
| September 3, 2019     | Huludao, Liaoning, China    | 52  | 40.75 | 102.22| Found in illegal mist-nets                           | 360kuai.com, September 12, 2019, https://www.360kuai.com/pic/9d0e9d45f991b31a%cota=3%kuai_so=1&sign=360_e39369d1 |
| September 25, 2018    | Dongli, Tianjin, China      | >1  | 39.00 | 117.71| 120,000 songbirds found in fattening center           | Huanbao World, September 28, 2019, https://www.huanbao-world.com/NGO/46085.html |
| December 11, 2017     | Mae Ai, Chiang Mai, Thailand| 3   | 20.02 | 99.33 | Found dead in mist-net                               | Ebird, http://ebird.org/ebird/view/checklist/S41022148                  |
| December 7, 2017      | Taobao online shop, China   | >1  | NA    | NA    | Live birds for sale online                           | Birding Beijing blog; Terry Townshend in litt, https://birdingbeijing.com/2017/12/07/critically-endangered-yellow-breasted-buntings-for-sale-online-in-china/ |
| December 6, 2017      | Tangshan, Hebei, China      | >50 | 39.34 | 117.36| Confiscated live and dead birds                       | Weibo News, 06/12/2017, https://weibo.com/tv/v/PynsEBYQP?fid=10341bcb8999f0183600ab0002cf152889a70 |
| September 1, 2017     | Tangshan, Hebei, China      | 7,000* | 39.34 | 117.36| Confiscated live birds                               | Miaopai News, September 1, 2017, http://www.miaopai.com/tpid/D3D9wpPFP5SYK48d |
| August 26, 2017       | Tangshan, Hebei, China      | 35  | 39.47 | 118.21| Collected from mist-nets                             | Weibo, August 26, 2017, https://m.weibo.cn/status/4144952311332022      |
| September 5, 2016     | Tangshan, Hebei, China      | 6,100 | 39.63 | 118.18| Confiscated live and dead birds in fattening center  | Tencent QQ News, September 7, 2016, http://news.qq.com/a/20160907/046305.htm |
| March 2014–February 2015 | Guizhou, Guizhou, China   | 1   | 26.65 | 106.63| For sale on public market                            | Dai, C., & Zhang, C. (2017). The local bird trade and its conservation impacts in the city of Guizhou, Southwest China. Regional Environmental Change, 17(6), 1763–1773. |

Note: Sources were found by searching for the English, Scientific, and Mandarin name of the Yellow-breasted Bunting using Google.
*Total number of all birds, other species were involved as well.
China’s largest online sales platform, Taobao (Townshend, 2017). Local farm managers have begun to improve stop-over habitat for the species (Hong Kong Birdwatching Society, 2017). More recently, China has significantly restricted wildlife trade in the course of the SARS-CoV-2 pandemic, which might further decrease the persecution pressure on Yellow-breasted Buntings (Mallapaty, 2020).

4 | ONGOING DECLINES BUT POTENTIAL RECENT, LOCAL POPULATION RECOVERY

Additional data were publicized in response to Kamp et al. (2015), describing exclusively declines and local extinctions until 2013, for example, from breeding sites in Central Siberia (Bourski, 2015), from Lake Baikal (Mlikovsky & Styblo, 2016), the Russian Far East (Antonov, 2016) and Hokkaido/Japan (Tamada, Hayama, Umeki, Takada, & Tomizawa, 2017). Declining numbers were also reported from stop-over sites in southern Primorye, Russian Far East (Valchuk et al., 2017) and Korea (Choi, Nam, Kim, Park, & Park, 2020).

Interestingly, from ca. 2016 onwards, several sites in Russia were recolonized, and a number of small populations recovered considerably. In European Russia, the species was reported from 20 sites between 2014 and 2018 (Mischenko, 2019), including in an area where it was believed extinct by around 2000 (Kamp et al., 2015). Larger numbers were found around Lake Baikal (Dorzhiev, Badmaeva, & Gulgenov, 2018; Ivushkin, 2017; Popov, 2017) and on Kamchatka (Gerasimov & Lobkov, 2019). It is unclear if these increases indicate a genuine recovery, or mirror an increased observer effort, given the high attention the species currently receives. The fact that abandoned sites were recolonized might at least point to a beginning recovery in some areas, notably in European Russia (Mischenko, 2019).

5 | EAST ASIAN SONGBIRDS UNDER PRESSURE: PRIORITIES FOR RESEARCH AND CONSERVATION

Legal and illegal trapping for food in China and adjacent countries is not restricted to Yellow-breasted Buntings, but affects a whole range of species (Li & Wilcove, 2005). However, in many reports of songbird confiscations, migratory buntings make up the bulk of the birds. This is most likely because they roost communally and can, therefore, be trapped in large numbers. Furthermore, because they are long-distance migrants, they are physiologically able to gain weight quickly, and are therefore

3 | CONSERVATION RESPONSE AND LAW ENFORCEMENT

The initial report on the extreme decline resulted in an encouraging response by conservationists, who lobbied for a higher legal protection status (Heredja, 2016). As a result, Yellow-breasted Bunting was uplisted to Critically Endangered on the IUCN Red List in 2017 (BirdLife International, 2020). In Russia, harboring the largest remaining breeding populations, the species was listed as a sharply declining species (Category 2) in the Russian Red Data Book List (Ministry of Natural Resources and Environment of the Russian Federation, 2020). China has placed the species into the highest category (I) of the list of nationally protected wild animals in 2021 (Ministry of Agriculture and Rural Affairs of China 2021). Awareness raising campaigns have since been conducted across China, with a flood of high-level media reports publicizing the case, an art contest and a large poster campaign (Hong Kong Birdwatching Society, 2018; Wang & Ziyi, 2018). Law enforcement has much improved, the police follows up reports of illegal trapping immediately, and poachers caught red-handed are arrested and fined (APWCPP, 2018; Townshend, 2018). Online trade was restricted soon after bunting sales were discovered on China’s largest online sales platform, Taobao (Townshend, 2017). Local farm managers have begun to improve stop-over habitat for the species (Hong Kong Birdwatching Society, 2017). More recently, China has significantly restricted wildlife trade in the course of the SARS-CoV-2 pandemic, which might further decrease the persecution pressure on Yellow-breasted Buntings (Mallapaty, 2020).
possible to be fattened-up before selling. With the depletion of Yellow-breasted Bunting stocks, poachers might have already shifted to other, still more abundant species. Photographs and videos from police raids show larger quantities of Chestnut Bunting (Emberiza rutila) and Tristram’s Bunting (Emberiza tristrami) (Tencent QQ News, 2016; Weibo News, 2019). Little Buntings (Emberiza pusilla) have been shown to be sold as “rice birds” (a name previously employed only for Yellow-breasted Buntings) in Chinese restaurants by the means of genetic analyses (C. Dingle, pers. comm.). Consumption might therefore also partly explain local declines in further migratory Emberiza species (Choi et al., 2020; Edenius et al., 2017; Valchuk et al., 2017; Yakovleva & Sukhov, 2017).

Declines on the East Asian flyway are not limited to buntings, but are shown by a larger number of land birds (Tamada et al., 2017; Tamada, Tomizawa, Umeki, & Takada, 2014). The flyway exhibits the largest number of threatened migratory species, but is also the least studied one globally (Yong et al., 2015). Little is known about further threats that drive declines except persecution. Asia has experienced dramatic land transformations with currently more than 50% of the land area under agriculture (Chen & Han, 2015). Northeast Asia, the main wintering area for Asian land birds, has the highest deforestation rate of any tropical region (Hansen et al., 2013). Forest loss has been suggested as a main driver of decline in migratory bird populations on Hainan (Xu et al., 2017) and in Japan (Yamaura et al., 2009). Pesticide use, which has doubled in East Asia between 1990 and 2010 (FAO, 2019), may affect bird populations indirectly through reduced food availability or directly through poisoning (e.g., Eng, Stutchbury, & Morrissey, 2017). Rice systems, home to many buntings in winter, have been intensified strongly, with accelerated crop rotation and strongly reduced periods of food availability for granivorous birds (Amira, Rinalfi, & Azhar, 2018; Dawe, Pandey, & Nelson, 2010). On top of that, climate change affects bird populations globally, including several endangered East Asian species (Wu & Shi, 2016).

In the light of these multiple threats to songbirds in East Asia, we suggest a number of research and conservation priorities:

1. Continue to develop the Land Bird Monitoring Scheme for Northeast Asia (Wee, 2015)
2. Harness existing data (e.g., eBird) to establish population trends for the region
3. Establish the scale, species involved and geographical patterns of land bird persecution, trade and consumption in East Asia
4. Relate spatial and temporal data on bird occurrences to flyway-wide data on changes in land cover, land-use intensity and climate to identify the main drivers of population declines

The Yellow-breasted Bunting might serve as a flagship species (sensu Caro & O’Doherty, 1999) in attempts to intensify the conservation of migratory land birds in East Asia as this appealing and vocal species is now well known in many countries along the flyway and has raised the awareness of a global audience due to its strong decline.

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CONFLICT OF INTEREST
The authors declare that there is no conflict of interest.

AUTHOR CONTRIBUTIONS
Wieland Heim and Johannes Kamp conceptualized the study, analyzed the data, and wrote the initial draft; all authors have reviewed and edited the manuscript.

DATA AVAILABILITY STATEMENT
All data can be found in Table 1 or in the cited references.

ETHICS STATEMENT
Nothing to declare.

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REFERENCES
Amira, N., Rinalfi, T., & Azhar, B. (2018). Effects of intensive rice production practices on avian biodiversity in Southeast Asian managed wetlands. Wetlands Ecology and Management, 26, 865–877.
Antonov, A. I. (2016). Breeding population trend of Yellow-breasted Bunting Emberiza aureola Pallas, 1773 at the south of Amur region. Ecological Problems of the Lower Amur Region, 17, 68–71 (In Russian).
APWCPP. (2018). Anhui province Wuhe County court verdict. Retrieved from http://wenshu.court.gov.cn/website/%0Awenshu/181107ANFZ0BXK4/index.html?docId=f1adbb9b475f404185c1a93801552c64%0A
BirdLife International. (2020). Species factsheet: Emberiza aureola. Retrieved from http://www.birdlife.org
Bourski, O. V. (2015). Interrelated changes of the life history traits in Yellow-breasted Bunting (Emberiza aureola). Proceedings of the conference on Energetics and annual bird cycles: 61–67. (In Russian)
Bucher, E. H. (1992). The causes of extinction of the passenger pigeon. In Current ornithology (pp. 1–36). Boston, MA: Springer.
Caro, T. M., & O’Doherty, G. (1999). On the use of surrogate species in conservation biology. Conservation Biology, 13, 805–814.
Yamaura, Y., Amano, T., Koizumi, T., Mitsuda, Y., Taki, H., & Okabe, K. (2009). Does land-use change affect biodiversity dynamics at a macroecological scale? A case study of birds over the past 20 years in Japan. *Animal Conservation, 12*, 110–119.

Yong, D. L., Liu, Y., Low, B. W., Española, C. P., Choi, C.-Y., & Kawakami, K. (2015). Migratory songbirds in the East Asian-Australasian Flyway: a review from a conservation perspective. *Bird Conservation International, 25*, 1–37.

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