

SUMMARY ON CRANES AND OTHER BIRDS POISONING IN UKRAINE

Since January 2021, a massive die-off of Eurasian Cranes (*Grus grus*) and other bird species has been recorded near the Askania-Nova Biosphere Reserve (Kherson Region, Ukraine). Similar occurrences have been reported in the southern part of Ukraine before, but not on such a scale.

Askania-Nova is the most important migratory stopover for Eurasian Cranes in this region, and also hosts large number of birds of other protected species during seasonal migrations. In autumn, migratory cranes from Scandinavia, Eastern Europe and most of European Russia gather here for rest and staging. In the spring, after crossing the Black Sea, the cranes rest in the reserve and wait for warm weather in more northern regions to continue migrating to their breeding grounds. Cranes spend the night and part of each day on the territory of the reserve, where they drink water. They fly to the agricultural fields outside the reserve to feed. With the warming climate, increasing numbers of Eurasian Cranes remain in southern Ukraine to overwinter.

The warming climate has also contributed to an increase in the number of murine rodents, mainly the Social Vole (*Microtus socialis*). These rodents eat winter crops in agricultural fields. To avoid crop losses, farmers across the region conduct rodent extermination activities from late autumn to late spring, often several times.

For this purpose, anticoagulants with the active substances *bromadiolone* or *brodifacoum* and similar second-generation anticoagulant rodenticides are used ([https://www.pesticidy.ru/group_substances/ anticoagulants](https://www.pesticidy.ru/group_substances/anticoagulants)), which cause internal hemorrhaging and a painful, prolonged death. According to the manufacturers' instructions, these chemicals, which are produced in capsules, must be pushed into the rodents' holes and buried. But in order to save money and manpower, grain treated with the chemicals is either scattered over areas with damaged seedlings (Figure 1) or evenly scattered over fields, including with mechanical seeders. As a result, these chemicals are distributed over big areas, even where there are no voles. The poisoned, scattered grain is eaten by a variety of animals and many of them die as a result of poisoning. These include overwintering birds and, in the spring, migrating birds. The presence of *brodifacoum* on grain and in dead birds was confirmed in a certified laboratory of the Ministry of Health of Ukraine. Attempts to stop the process of spreading poisoned grain and remove already scattered grain from the fields have not yet yielded any results, despite the creation of a special

commission under the auspices of the Ministry of Environmental Protection and Natural Resources of Ukraine.

From 2 to 21 January 2021, the staff of the Askania-Nova Biosphere Reserve found 218 poisoned Eurasian Cranes at their roosting site in the reserve (Figure 2, 3, 4). There were many juveniles among the dead birds (in one of the groups, two adults and 44 juveniles). After news of this die-off spread on the internet and popular media, an investigation was undertaken by the staff of the Askania-Nova Nature Reserve and several regional bodies (regional authorities, state ecological inspectorates etc.) along with strengthening of measures to prevent another such occurrence. However, despite the increased attention to this problem, it has unfortunately not been resolved. In February, more dead cranes and other bird species were regularly found. In March, as the migratory period began, the number of dead birds increased greatly. On 28 March, another 108 dead cranes were found at a second roosting site in the vicinity of the reserve. To 1 April 2021, 2103 dead birds of 20 species were collected inside the reserve alone, including 484 Eurasian Cranes. This is only a fraction of the true mortality, as the area of fields on which the poison grains are spread is vast. The mortality is continuing caused by birds eating poisoned grain that was put out months ago: more dead cranes were found on 5 April 2021 at the same place where they were found on 28 March (Figure 5).

Among the dead cranes found at the second roosting site was a one tagged with color plastic rings and a GPS-GSM transmitter (Figure 6). This crane was tagged in 2018 in the buffer zone of the Oka State Nature Biosphere Reserve (Ryazan Region, Russia), and for three years it was tracked and visually registered at wintering sites in the Hula Valley in Israel and pre-migratory staging areas in the Ryazan Region. This crane had a partner, also marked with a transmitter, with whom he produced a chick during one of these years. Fortunately, the partner is alive. By tracking the movements of this dead bird and his partner, it was possible to identify the fields on which they regularly fed and where they were poisoned by the treated grain (Figures 7, 8).

Treated grain scattered over the fields can also become a threat to the Azov-Black Sea population of the Demoiselle Crane (*Anthropoides virgo*), which has already returned from its wintering grounds and will soon start to breed. The number of this population continues to decline, especially in the south of the Kherson, Zaporozhye and Donetsk regions, where no more than 50 pairs currently nest. Most Demoiselle Cranes in this area breed and feed in agricultural fields, so the risk of death from

rodenticide poisoning is very high. In addition, young and non-breeding individuals in April-August gather on the Sivash Bay coast in the Kherson Region and feed on agricultural fields, where they can also be poisoned. Poisoning, together with other threats, could lead to the extinction of this most western isolated critically endangered population (CR) of the Demoiselle Crane.

Southern Ukraine is also an important migratory stopover and overwintering area for Great Bustards (*Otis tarda*) which breed along the Lower Volga River in Russia. A breeding population of Great Bustards also remains year-round within southern Ukraine. Continued use of poisons in this region has the potential to cause losses in both breeding populations, which are already declining. The Lower Volga population of Great Bustards is globally significant, as the second-most important breeding area for this species in the world.

Seven of the 20 species of dead birds are listed in the Red Data Book of Ukraine (2009): Red-breasted Goose (*Branta ruficollis*), Ruddy Shelduck (*Tadorna ferruginea*), Hen Harrier (*Circus cyaneus*), Long-legged Buzzard (*Buteo rufinus*), White-tailed Eagle (*Haliaeetus albicilla*), Saker Falcon (*Falco cherrug*), and Eurasian Crane. On 28 March on the bank of the estuary, near the village of Novaya (Akimovsky District, Zaporozhye Region), 9 Whooper Swans (*Cygnus cygnus*) and one Mute Swan (*C. olor*) were found dead. They are not threatened species in for Ukraine, but the Whooper Swan is migratory and the Mute Swan is a breeding species for Ukraine. Swans are observed to feed on grains in this region in spring and autumn.

It should be emphasized the die-offs reported over the past three months near the Askania-Nova Biosphere Reserve are not the first such occurrences in Ukraine. In 2009, about 2,500 Bean (*Anser fabalis*) and White-fronted (*A. albifrons*) Geese died in the Kharkov Region. Regional veterinary service reacted immediately because of concern about avian influenza. Samples were taken from 20 individuals. The analysis showed a 10-fold excess of zinc content in their tissues. Most probably, the birds were killed by zinc phosphide (another strong rodenticide). In Askania-Nova in the winter of 2011/2012, about 560 wild ducks and geese died, including 25 Red-breasted Geese, an endangered species (Figure 9). These birds also fed in the fields around the reserve and, after eating poisoned grain during the day, spent the night within the reserve, where they died. They were also poisoned with zinc phosphide, which was broadly used in Ukraine that time. After this accident, zinc phosphide was forbidden in the country. In late December 2012, about 70 dead Red-breasted Geese (Figure 10) were found on the Black Sea coast near the village of Risovoye

(Krasnoperekopsky District, Crimea), and local people also reported the deaths of about 300 wild geese. In 2019, die-offs of birds of various species were observed in the Zaporozhye Region, including Hooded Crows (*Corvus corone*), rooks (*Corvus frugilegus*), magpies (*Pica pica*), gulls (*Larus* spp.), and buzzards (*Buteo* spp.). Given that there is no systematic collection of data on bird poisonings, there is a high probability that the actual number of cases is an order of magnitude higher than reported.

These poisons not only cause mass die-offs during winter and migration, but may also affect breeding birds, especially small granivorous ones, but there have been no studies in the breeding season in Ukraine. Across Ukraine, 56% of farmland is plowed. In some regions in the south of the country this percentage can reach 90%. It is these southern regions, which host the country's major waterbird breeding populations, as well as important migratory and wintering sites.

The Government of Ukraine has international obligations for the conservation of biological diversity and signed a number of international environmental agreements. These include the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA), the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and the Convention on Wetlands (Ramsar Convention). The Government of Ukraine bears full responsibility for the implementation of these agreements on its territory.

In connection with the above, we ask for international support to prompt Ukraine to take a more responsible attitude towards the use of pesticides. Specifically, to limit their use as much as possible; to ensure that when they are used, that they are applied using the proper prescribed protocols; to enforce existing legislation and adopt any additional legislative acts and operational measures that are necessary to prevent the death of birds from pesticides.

Dr. Vasily Kostiushev, Head of the Department
of Monitoring and Protection of Wildlife, Institute of
Zoology named after I.I. Schmalhausen

Dr. Yury Andryushchenko, Head of the Laboratory
of Ornithology of the South of Ukraine,
Azov-Black Sea Ornithological Station

Dr. Elena Ilyashenko, Executive Director of
the Crane Working Group of Eurasia

Urocyf -

Dr. Evgeny Syroechkovskiy, Coordinator of
the Association of Specialists for the Study and
Conservation of Birds "Working Group on
Waterfowl of Northern Eurasia" (Association RGG)

RGG



Figure 1. Treated grain in fields – crane feeding sites



Figure 2, 3. Poisoned Eurasian Cranes



Figure 4. Poisoned Eurasian Cranes and Ruddy Shelducks



Figure 5. Cranes are continuing to be poisoned, on 5 April 2021



Figure 6. The Eurasian Crane tagged near the Oka State Nature Biosphere Reserve (Ryazan Region, Russia) in 2018 and died near the Askania-Nova Biosphere Nature Reserve in spring 2021

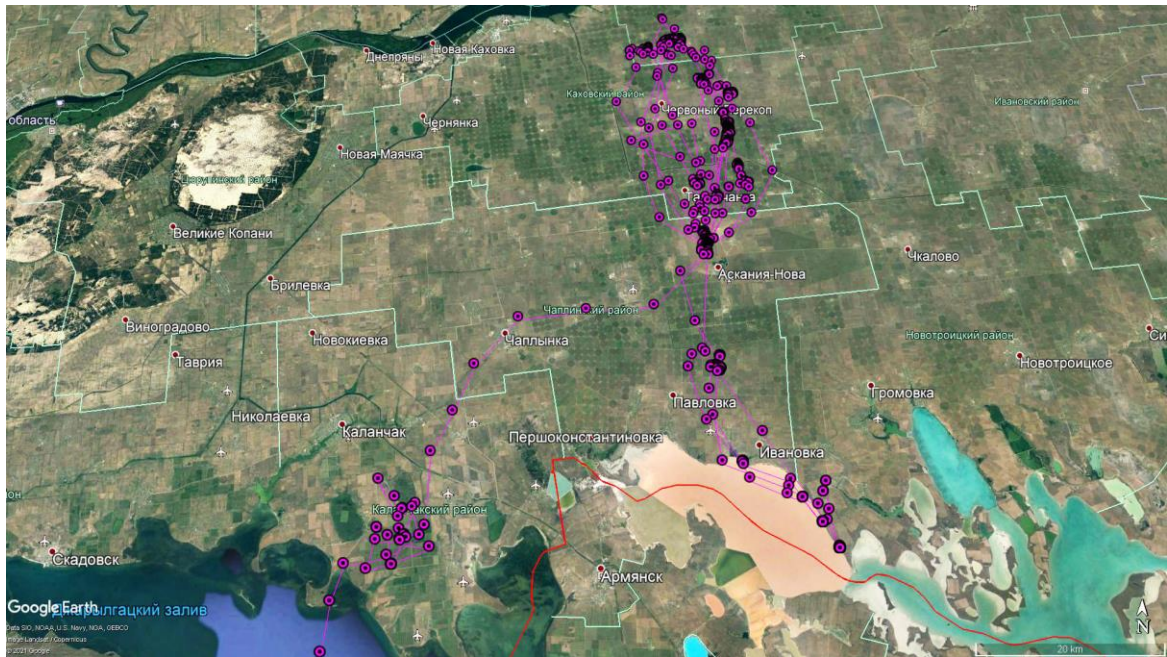


Figure 7. Tracking of tagged Eurasian Cranes in feeding sites allowed to discover the agricultural fields where crane took poisoned grain



Figure 8. Dead Eurasian Cranes and Ruddy Shelducks in filed with scattered poisoned grain



Figure 9. Poisoned Bean Geese and Red-breasted Geese in Askania-Nova in 2011



Figure 10. Remains of Red-breasted Geese in Crimea on 20-25.12.2011