Hawk kite as potential bird scare device  
(the case of pigeons and grain processing factory)  

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Here we presented the preliminary results of hawk kite usage against the feral pigeons in some grain-processing factory. We studied the temporal and spatial patterns of repellent effect and bird behavior. We suggested the feral pigeons gradually increase the level of tolerance towards the hawk kite if no additional repellent measures were undertaken. Moreover, even initially the feral pigeons demonstrate higher tolerance towards the hawk kite compared to the Rooks or Hooded Crows.  

**Key words:** Feral Pigeons; Hawk kite; bird scare; repellent; industrial zone  

Nowadays the great variety of bird control devices are manufactured, among them so-called dynamics repellent or hawk kites. It is problematic to determine the priority manufacture among English, Chinese, Ukrainian and others but almost all them declare the high effectiveness (from 70 to 100 %) and state that birds will not habituate to such repellents (Booth, 1994; Buijs, Van Wijnen, 2001; Christensen, 1996; Dobeic et al., 2011).  

The problem of pest bird control at grain processing or breweries is extremely difficult since the birds have constant feed supply over there and sometimes plenty of roosting places due to constructive peculiarities of these enterprises (Giunchi et al., 2012; Harris et al., 2016; Harris, Davis, 1998; Hutton, 2005).  

We had good results of kite management program against the Rooks and Hooded crows at the agriculture fields and rural areas but we hesitated whether their use towards the Feral Pigeons should be effective as well.  

We tried to use the Hawk kite as a part of bird control program in several grain processing plants and elevators. There are some reports regard hawk kite usage for bird control, but they dominantly cover fields or orchards and other bird's species, like blue jays, starlings, mockingbirds, mourning doves, house finches, and bronzed grackles (Conover, 1979, 1983, 1984; Harris et al., 2016; Harris, Davis, 1998; Sacchi et al., 2002). Some reported results indicate that raptor models cannot provide total protection of crops from bird damage (Conover, 1983). The main constraints are different reaction of bird species towards the kites, bird habituating to the kites after prolonged exposure (Conover, 1984; Harris et al., 2016; National..., 2011). Our article is the initial estimation of non-lethal humane pigeon control strategy with focus on dynamic repellent (hawk kite) on the Barnaul Brewery.  

**Methods**  

**Study area**  

The Barnaul Brewery located in Barnaul City, 56.19N 83.36E (Altai Krai, Russian Federation). The Brewery is located in the industrial zone surrounded by other grain processing plants and abandoned warehouses that are the place of pigeons breeding. Since the establishment, there was no bird control management activity at all and in 2016, we started to protect the Brewery from the pest bird species, like Rooks, Sparrows, Swallows, and the Feral Pigeons. This study took place almost three months in 2018. The adult and juvenile pigeons were counted during the day time regards foraging activity periods, namely in the morning and afternoon. We observed the bird's behavior towards the installed kites every day since the moment of installations (April 2018) during 4 hours (from 10.00 AM until 2.00 PM) within two weeks and after this, we performed the same observations once per week for two month (May and June 2018). Our aim was to estimate the efficacy of a hawk kite as the bird control measure and evaluate the pigeon tolerance degree towards the kites due to habituation. Thus, we evaluate tree periods to assess the effectiveness of hawk kites. The first period evaluated the initial reaction of the birds to the kites, the second estimated the birds' response after 4-8 hour period, and the third examined the effectiveness of the hawk kites within 14-60 days period. The kites (ca. 12) were placed in the territory of the brewery in the places of pigeons roosting and feeding. We used telescopic pole of 6 m long and two variants of the kites – black, yellow, and grey with yellow. The constructions of the kites allows them to start the flight at wind speed of 0.5 m/s and they still can survive until 20 m/s.  

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**RESEARCH NOTE**  

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The initial effect on the number of feeding or perching birds was determined by comparing the number of birds at the feeding or landing immediately following the placement of a kite in the place. Short-term response was evaluated by count of the number of pigeons at feeding or landing during 1-hour period immediately following kites placement. The results were then compared to the number of birds present after the kite was left in place 4 to 8 hours. In long-term response study, the kite-hawks were set at least up for a 60 days period over the brewery. The number of birds that feeding or resting in the vicinity of the hawk kites was counted daily with approximate measurement of the distance from the pigeons to the kites.
Results

After 60 days of the experiment, we definitely cannot suggest the use of the hawk kites in the pest bird control against the pigeons on the area with constant feeding resources. The effect of the kites on pigeon's behavior is very limited while we did not estimate the significant effect on their number.

References


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