BIRD SPECIES COMPOSITION, QUANTITY AND DYNAMICS IN AREAS OF SLOVAK AIRFORCE AIRPORTS AND IN THEIR SURROUNDINGS

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ABSTRACT

Author of this article gives the basic information about the problems of birds at the airports of the Army of Slovak republic, about the species composition of avifauna and about the method of quantitative monitoring of birds on the airports listed above too. He is pointing at the fact, that the greatest risk of birdstrikes comes from the nesting population of the species, that nest in airports (and their close surroundings) 7 of them (Hirundo rustica, Stumus vulgaris, Larus ridibundus, Delichon urbica, Ciconia ciconia, Corvus frugilegus, Columba livia f. domestica) fall into the category mentioned above that are at conditions in Slovak republic particularly dangerous for the flight security.

Species composition of avifauna.

Knowledge about the species composition of avifauna on particular airports was gained by a special ornithological reconnaissance on every one from six airports of Army of Slovak republic (ASR). Each one of these recconassances took one week during each season, e.g. in spring, summer, autumn and winter. It was performed in precisely determined areas of inner and outer ornithological protective zones (see picture 1).

This way the basic informatron on quantitative side of avifauna was achieved on particular airport.

We deal with quantitative side of avifauna of airports, that is of much greater importance, from 1992 on three airports and from 1993 on another three airports

These data yield us the possibility of watching the change in number of particular species within a year, but also during more years.

We can watch the first reach of migrating species of birds, their quantity during migration

period, rate during nesting period and mainly the increase of total rate in postnesting period (the period, when migrating species prepare for the flight to their winter habitats).

We obtain the quantitative results by a uniform method and by uniform filling the watching forms on each from mentioned airports. All the procedure is directed by the special group at the Department of ecology, Military Veterinary Institute in Košice and executed by the individual employees of BPU. Consequently these data are evaluated and graphically processed. So they serve for the ornithological predictions at pre-flight preparations for certain periods in following years.

The method of quantitative recconaissance was made and fitted by us to special environment of airports. It is impossible to use just one of the special methods (e.g. method of mapping of nesting squares, method of point transects, or other line methods), because they are just for the nesting period or they are just for the certain period of the day, they don't record the species with nocturnal activity, or the species that just fly over the monitored area, we created our own method of detection within the whole year on the airports.

Method:

For watching the birds we use field-glass 6 x 30 or 7 x 50. All seen or heard birds during one week are registered within a day with writing down the greatest number of at one moment seen or heard birds of one species.

This is done only in inner ornithological protective zone e.g. 500 m on both sides of runway and to 1 km distance from both ends of runway.

Evaluation is done always once a week (on Fridays) to uniform forms, where one entry with the greatest number is written for all previous week of at one moment seen or heard birds of one species

We surely can record the smallest number of certain species, that was staying on (or flying over) the individual airport in the quoted time.

We can compare these data from all monitored airports by simple statistics counts. They are quite different on all individual airports mostly because of the different environmental conditions depending on where the airport is situated.

At the same time we can see from this data when during the year is the highest rate of birds of particular species and then there is the highest risk of birdstrikes.

Afterwards, on the base of the data, we propose the ways of solution, technical devices and the methods for minimizing the risk of birdstrikes and solving the actual situation on individual airport.

Results :

On six airports of the Army of the Slovak Republic there were registered 107 species of birds (table 1), from them there are 10 negative for the air traffic (table 2).

Slovakia is an inland country and there is a certain difference between their country and the other ones, where the greatest risk represent the migrating species and the period of migration. The problem here is the nesting population of birds, that creates communities during nesting and post-nesting period. Seven from 10 listed negative species fall into this group.

The critical period is from July to September, it means period from flying the young from their nests till they fly together with adults to their winter habitats (swallows, house-martins, starlings, gulls, storks), when they formate great pre-migratory concentrations

Negative situation in airports surroundings is dependent mostly on agricultural works, that provide rich food source for great flocks of birds, that change from place to place according to momentary place and time of performing the agricultural works.

Negative is also the linkage of some airports to bigger cities, when there are birdstrikes with synantropical species of birds directly above the city (pigeons - Columba livia f.domestica, swallows, swifts e.t.c.)

Conclusion :

Scanning the qualitative and quantitative side of avifauna on the airports yields us an excellent salient point at prevention from birdstrikes, for the cooperation with flight personnel, for the well worth offering the ornithological situation information and ornithological protection of the airports of the Army of Slovak Republic

TABLE 1

Survey of the bird species found on six airports of SKAF (in inner and outer ornithological protective zone).

Accipiter gentilis, a.nisus
Actitis hypoleucos
Alauda arvensis
Anas crecca, a.clypeata, a.platyrhynchos, a.querquedula
Anser anser
Apus apus
Aquila heliaca, a.pomarina
Aredea cinerea
Aythya ferina, a.fuligula
Bucephala clangula
Buteo buteo, b.lagopus
Bombycilla garrulus
Carduelis cannabina, c.carduelis, c.chloris, c.spinus
Ciconia ciconia, c.nigra
Circus aeruginosus, c.cyaneus, c.pygargus
Columba livia f.domestica, c.palumbus
Corvus corax,.c.corone cornix, c.frugilegus, c.monedula
Coturnix coturnix
Cuculus canorus
Cygnus olor
Delichon urbica
Dendrocopus m
Emberiza calan
Falco columbar
Fringilla coeleb
Galerida cristat
Garrulus glanda
Grus grus
Hirundo rustica
Charadrius dub
Chlidonias leuc
Jynx torquilla
Lanius collurio
Larus argentatu
Locustella fluvia
Luscinia megar
Motacilla alba,
Mergus albellus
Oenathe oenan
Oriolus oriolus
Pandion haliaet
Parus caeruleu
Passer domest
Perdix perdix
Phasianus colc
Phoenicurus oc
Phylloscopus c
Pica pica
Picus canus, p.
Podiceps crista
Pyrrhula pyrrhu
Regulus regulu
Saxicola rubetr
Serinus serinus
Sitta europaea
Streptopelia de
Sturnus vulgari
Sylvia atricapil
Tachybaptus ru
Tringa glareola
Turdus merula
Upupa epops
Vanellus vanel

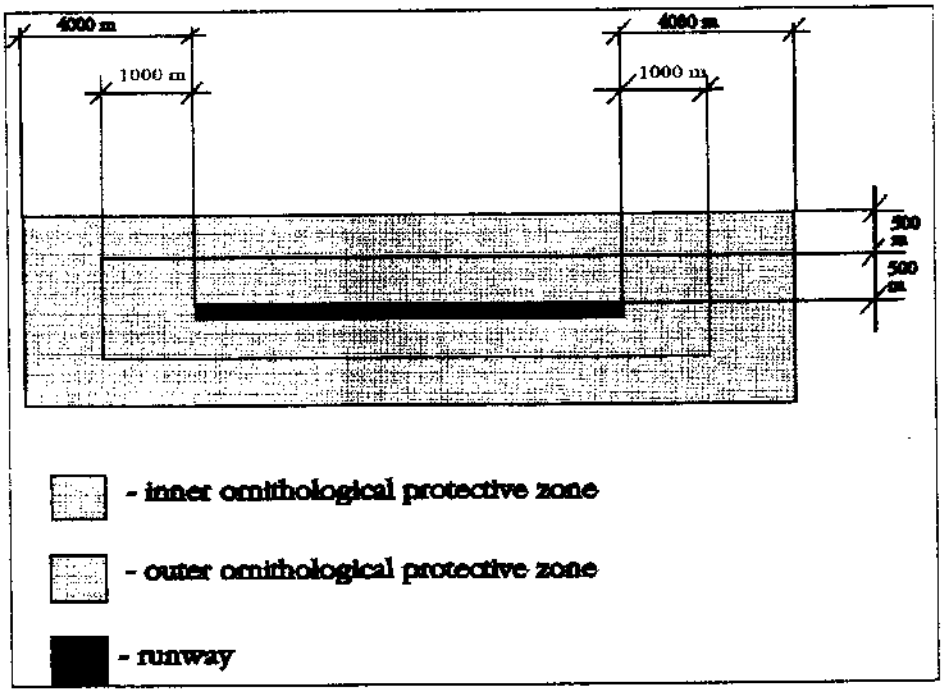
Cygnus olor
Delichon urbica
Dendrocopus major, d.minor
Emberiza calandra, e.citrinella, e.schoeniclus
Falco columbarius, f.tinnunculus, f.subbuteo, f.vespertinus
Fringilla coelebs
Galerida cristata
Garrulus glandarius
Grus grus
Hirundo rustica
Charadrius dubius
Chlidonias leucopterus, ch.niger
Jynx torquilla
Lanius collurio, l.excubitor
Larus argentatus, l.canus, l.ridibundus
Locustella fluviatilis
Luscinia megarhynchos
Motacilla alba, m.flava
Mergus albellus, m.merganser, m serrator
Oenathe oenanthe
Oriolus oriolus
Pandion haliaetus
Parus caeruleus, p.cristatus, p.major, p.montanus
Passer domesticus, p.montanus
Perdix perdix
Phasianus colchicus
Phoenicurus ochruros
Phylloscopus collybita, ph.trochilus
Pica pica
Picus canus, p.viridis
Podiceps cristatus, p.nigricollis
Pyrrhula pyrrhula
Regulus regulus
Saxicola rubetra, s.torquata
Serinus serinus
Sitta europaea
Streptopelia decaocto, s.turtur
Sturnus vulgaris
Sylvia atricapilla, s.borin, s.curruca
Tachybaptus ruficollis
Tringa glareola, t.ochropus
Turdus merula, t.philomelos, t.pilaris t viscivorus
Upupa epops
Vanellus vanellus

TABLE 2.

NEGATIVE SPECIES FROM THE FLIGHT SECURITY' S POINT OF VIEW ON AIRPORTS OF SLOVAK AIR FORCES.

Alauda arvensis
Buteo buteo
Ciconia ciconia
Columba livia f.domestica
Corvus frugilegus
Delichon urbica
Falco tinnunculus
Hirundo rustica
Larus ridibundus
Sturnus vulgaris

FIGURE 1.



Runway and ornithological protective zones

This is an example of quantitative bird species monitoring on two SKAF airports