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THE FIRST RECORDS OF THE COMMON PHEASANT, *PHASIANUS COLCHICUS* (AVES: GALLIFORMES: PHASIANIDAE), AND ITS GROUP IN SOUTH-EASTERN LATVIA

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The Common Pheasant, *Phasianus colchicus* (Linnaeus, 1758), is a native bird to Asia and has been widely introduced in Europe. This species has been recorded only several times in Latvia since 2005. Only individual specimens were encountered in all the cases. For this reason, *Phasianus colchicus* is not included into the list of Latvian bird species but registered in the D category (species with unknown origin). The recording of findings of *Phasianus colchicus* was made by us in south-eastern Latvia as a part of our research on allochthonous species in the local terrestrial and water ecosystems. The main methods of the research were: observations in wild, interviewing of local hunters, analyses of publications, analyses of hunting offers. We have observed *Phasianus colchicus* three times in 2015: we once observed a probably successfully overwintered group and twice a single female of *Phasianus colchicus* (probably the same specimen) in 2015 before April in Ainavas, Kalkunes parish, Daugavpils district, south-eastern Latvia (55°50'7.06"N; 26°29'8.90"E). There have been totally registered 17 published earlier or registered by us cases of observation of *Phasianus colchicus* in nature in Latvia since 2005. The data on its ecology in Latvia are generalized. It is no doubt that when further assessing the possibility of naturalization and formation of sustainable populations of *Phasianus colchicus* in Latvia, it is necessary to take into account both the possibilities of its seasonal migration and a clear tendency toward climate warming in the Baltic region and mitigation of winters in Latvia.

Key words: Phasianidae, *Phasianus colchicus*, allochthonous species, introduction, nature conservation, climate change, Latvia, Baltic region.

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INTRODUCTION

The progressive spread of the allochthonous species is a global threat to natural biodiversity and ecosystems. The allochthonous species of anthropogenic origin are able to influence both Latvian ecosystems and species threatening the existence of the latter by means of their own life activities, as well as become the source and vector of the spread of parasite species, also

previously unknown in Latvia and in Baltic region. We started to register the allochthonous animal species in the ecosystems of our target species *Bombina bombina* and *Emys orbicularis* in Latvia, having encountered the invasive fish *Perccottus glenii* in the habitats of rare *Bombina bombina* in 2004 (Pupins & Pupina 2012) and having subsequently registered the cases of finding more than 8 exotic turtle species in Latvia (Pupins 2007, Pupiņš & Pupiņa 2007, Pupins & Pupina 2011).

One of the animal groups, willingly introduced into an unnatural area of distribution by human, is birds. A very popular object for introduction, hunting and breeding is the Common Pheasant, *Phasianus colchicus* (Linnaeus, 1758), which is a native bird to Asia and has been widely introduced in Europe and in the World (Fig. 1).

Despite the data, this species has been recorded only several times in Latvia since 2005: "The last known attempt to introduce the species was made in 1981 (it is to make precise the source of information). Although the birds released into nature nested, a permanent nesting population did not form at that time. The climate (regular severe winters) and natural enemies are the main reasons not allowing the pheasant to successfully settle down in Latvia. At least until recently the ability of the pheasant to survive without people's support is doubtful. Therefore, there is no reason for including the pheasant into the list of Latvian bird species. According to unverified information, there might be at least one or several private farms in Latvia in which pheasants are bred for hunting or just leisure. It is possible that escaped specimens live around such places and might nest in freedom. However, such cases are not known at least in the 21st century." (Celmiņš 2015). The known findings in Latvia are (place, date, observers): 1) Dundaga, 21.05.2005, M.Purmalis, V.Purmale; 2) Užava, 09.06.2008, R.Rekmanis; 3) Sējas district, 30.12.2008, E.Račinskis, D.Drazdovskis; 4) Liepāja, 05.11.2009, E.Lediņš, G.Grandāns, A.Kalvāns; 5) Garkalne, 05,-06,2012, two-times vocalising, E.Račinskis; 6) Berģi, 19.06.2012, A.Vilciņš; 7) Garkalne, 14.06.2012, E.Lediņš; 8) Carnikava, 13.02.2015, V.Alksnitis (Bušs 2012; Celmiņš 2015).

Only individual specimens were encountered in all the cases. For this reason, *Phasianus colchicus* is not included into the list of Latvian bird species but registered in the D category (species with unknown origin) "…due to doubts that a population is able to survive without human's support" (Celmiņš 2015). Agris Celmiņš says that „if a pheasant manages to escape from hunters then nesting in nature becomes real; hence some potential will spread if the climate and natural enemies make it possible. Each such case is useful

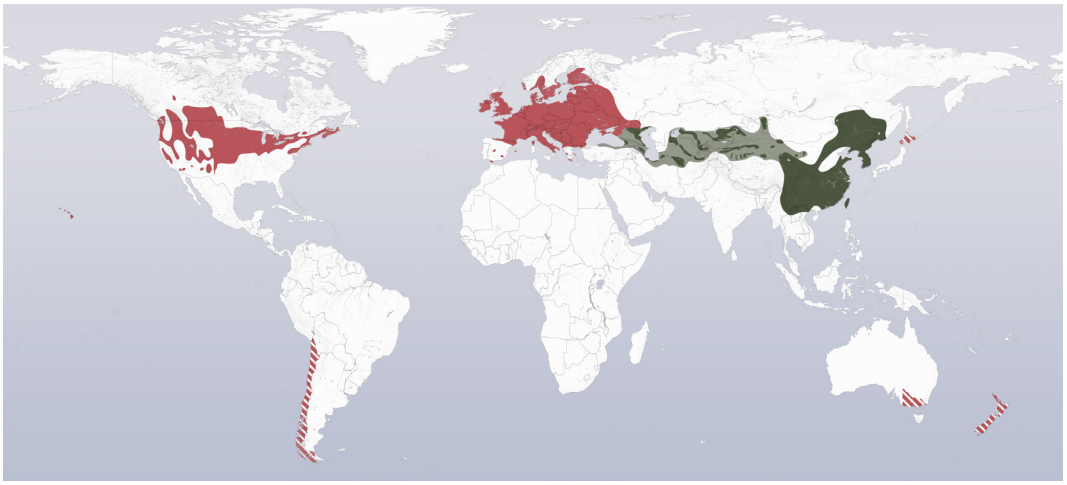

Fig. 1. Original (black) and current (red) distribution of the Common Pheasant (*Phasianus colchicus*). Stripes: No detailed data about distribution (Wikimedia Commons).

for the bookkeeping of the ornitofauna." (Bušs 2012). Agnis Bušs notes that "…the formation of a wild population would directly testify to the impact of climate change on the populations of Latvian birds. Until now, the climate (regular severe winters) and natural enemies have been the main reasons not allowing the pheasant to successfully settle down in Latvia." (Bušs 2012).

The above-mentioned makes it topical to register and investigate the cases of observation of *Phasianus colchicus* in Latvia, including in the habitats of rare herpetofauna species.

MATERIAL AND METHODS

The recording of findings of *Phasianus colchicus* was made by us in south-eastern Latvia as a part of our research on allochthonous species in the local terrestrial and water ecosystems of *Bombina bombina*. We have been conducting these researches since 2004. In such ecosystems we register the animals unusual for the fauna of Latvia. For the purpose of recording, we used a visual observation by means of a monocular *Tagrider 8x21*, the results of the observation were captured on photos and videos with the help of the *Canon* camera and automatic registration of coordinates and capture time in the data of the photofiles.

The additional research methods were the generalization and analysis of materials on the registration of *Phasianus colchicus* in Latvia published by ornithologists and specialists. We also studied the materials on coming across with *Phasianus colchicus* published in the mass media. In addition, we surveyed several hunters in south-eastern Latvia. We also examined the proposals published on the Internet to sell and buy *Phasianus colchicus* in Latvia in 2015, as well as commercial proposals regarding organized hunting for *Phasianus colchicus* and hunters' feedbacks on such hunts.

In accordance with the aims of the research (distribution regions of Latvia) the very detailed coordinates of the findings were non-obligate; therefore we registered the coordinates of the observation places published by specialists to the seconds. The coordinates of an observation place were determined with the help of the *Google Earth* services. When placed on a map, a circle 10 km in diameter was considered as a point of finding, the center of which is located around the place of observation of *Phasianus colchicus*, thus allowing us to ignore the inaccuracy when given names or description of a particular place of observation by authors and observers, as well as taking into account the possibility of the recorded specimen's migration in this area.

Fig. 2. The place of the observation of the *Phasianus colchicus* group. One day before: the *Capreolus capreolus* have been dug last year's apples out of the snow 4 – 6 cm in depth. 2015.02.10.

Fig. 3. *Phasianus colchicus* female, Ainavas, Kalkunes parish, Daugavpils district; 2015.03.27.

RESULTS

The observation of *Phasianus colchicus* in nature

We have observed *Phasianus colchicus* three times in 2015: we once observed a probably successfully overwintered group and twice a single female of *Phasianus colchicus* (probably the same specimen) in 2015 before and including April in Ainavas, Kalkunes parish, Daugavpils district, south-eastern Latvia (55°50'7.06"N; 26°29'8.90"E).

1st observation. 2015.02.11. 08:00 - 9:00. A group of approximately 3 (two more birds were not identified precisely) females *Phasianus colchicus* was observed on the outskirts of a home garden. The *Phasianus colchicus* and some *Corvus cornix* were actively feeding on last year's apples which had been dug out of the snow 4-6 cm in depth by four *Capreolus capreolus* the day before, as well as on fresh apples left by us for *Capreolus capreolus* (Fig. 2).

The observation place is surrounded by an areal of 6 ha of a meadow uncut since 1995 with six ponds and overgrown with bushes and groups of trees, as well as dense last year's grass. This area is separated from other territories by plowed lands, a marshy pond, village, and private buildings, asphalt and natural soil roads. The area is permanently inhabited and regularly visited by 4-5 *Capreolus capreolus*, 2 *Vulpes vulpes*, *Lepus europaeus*, *Erinaceus europaeus*, and *Anas platyrhynchos*. The ponds are breeding places for the amphibians *Bombina bombina*, *Pelobates fuscus*, *Bufo viridis*, *Bufo bufo*, *Rana temporaria*, *Rana arvalis*.

Fig. 4. *Phasianus colchicus* female, Ainavas, Kalkunes parish, Daugavpils district; 2015.04.06.

2nd observation. 2015.03.27. 08:00 - 10:30. A female of *Phasianus colchicus* was observed at the same place in the home garden inside the fence 2 m in height. The bird was feeding on last year's apples on the cut area; it was actively digging up last year's leaves and exploring raspberry bushes for more than two hours. The observation was photo and video documented (Fig. 3).

3rd observation. 2015.04.06. 17:18 - 17:57. A female of *Phasianus colchicus* was observed at the above-mentioned place in the home garden outside the fence. The bird was feeding on last year's apples, searching for food under last year's leaves for 40 minutes on the area of 4-5 meters radius under the crown of two apple trees. The observation was photo and video documented (Fig. 4). After feeding, *Phasianus colchicus* left for the last year's grass up to 40 cm in height surrounding the cut garden.

Interviewing of hunters

While surveying several hunters from south-eastern Latvia, one of them (Valdis Batarags) claimed that had seen a male of *Phasianus colchicus* fly up in front of him from the grass on the edge of the field in the vicinity of Kraslava in 2013. The respondent is a very experienced hunter who has multiple times hunted for pheasants for many years while living in the area of their natural distribution in the Russian Far East.

The distribution of *Phasianus colchicus* in Latvia

There have been totally registered 16 published earlier or registered by us cases of observation of *Phasianus colchicus* in nature in Latvia since 2005 (Table 1).

Table 1. The records of *Phasianus colchicus* in Latvia since 2005

Registration #	Date and time of observation	Place and approximated coordinates	Quantity and sex of observed birds	Quantity of observations	Description	Photo or video	Observer and source
1	2005.05.21.	Dundaga, next to the house "Ausekļi" 57°29'46"N; 22°20'52"E	1	once	Next to the house.	unknown	M.Purmalis, V.Purmale (Celmiņš 2015)
2	2008.06.09.	Užava, 57°14'23"N; 21°25'45"E	1, male	once	Downstream meadows of Užava.	unknown	R.Rekmanis (Celmiņš 2015)
3	2008.12.30.	Sējas district, by the side of the road to the north-east from the polygon „Ādaži", around „Sēja", close to the road „Saulkrasti-Ragana" 57°15'39"N; 24°37'41"E	1, male	once	By the side of the road.	photo	E. Račinskis, D.Drazdovskis (Bušs 2012; Celmiņš 2015)
4	2009.11.05.	Liepāja the island „Zirgi" 56°31'1"N; 21° 2'11"E	1, male	once	unknown	unknown	E.Lediņš, G.Grandāns, A.Kalvāns (Celmiņš 2015)
5	2011.02.23.	Ozolnieku district, houses „Ūpes brūveri" 56°41'35"N; 23°47'14"E	1, male	once	It strayed around the house.	video	T.Karnopele (Krīgere 2011)
6	2011.05.31. 00:00	Brenguļi, Upmaļi 57°32'47"N; 25°35'22"E	1	once	It flew up onto branches of a fir tree in the evening for the night.	unknown	A.Klepers (Ziņoja A.Ustups) (Dabasdati.lv)
7	2011.06.24. 15:30	Vecdaibes 57°33'21"N; 25°38'37"E	1	once	It flew up from the road to the nearest potato field.	unknown	S.Paegle (Dabasdati.lv)
8	2012.04.01. 11:20	Meadows next to Muižnieki 56°52'14"N; 23°40'34"E	1, male	once	It was hiding next to a feedbox of game animals.	unknown	G.Eriņš (Dabasdati.lv)
9	2012. 05.-06.	Garkalne 57° 2'33"N; 24°26'12"E	1, male	two-times (?)	Vocalising.	unknown	E.Račinskis (Bušs 2012; Celmiņš 2015)
10	2012.06.15.	Berģi 56°59'12"N; 24°18'37"E	1, male	once		photo	A.Vilciņš (Bušs 2012)
11	2012.07.14.	Garkalne 57°2'41"N; 24°27'42"E	1, male	once	A melanistic specimen.	photo	E.Lediņš (Bušs 2012)

12	2013	55°56’29”N; 27°10’1”E	1, male	once	It flew up from the grass on the edge of a field.	no	V.Batarags (pers. comm.)
13	2015.02.11. 08:00 - 9:00	Ainavas, Kalkunes civil parish, Daugavpils district 55°50’7”N; 26°29’8”E	3 females (two more birds were not identified precisely)	for the first time in the place	The description is mentioned above.	no	M.Pupiņš
14	2015.02.13. 12:36	Carnikava 57°7’37”N; 24°16’43”E	1, male	once	It was pottering about the garden and later on flew away to the wood.	photo	V.Alksnītis (Dabasdati.lv)
15	2015.03.27. 08:00 - 10:30	Ainavas, Kalkunes civil parish, Daugavpils district 55°50’7”N; 26°29’8”E	1, female	for the second time in the same place	The description is mentioned above.	photo, video	M.Pupiņš, A.Pupiņa
16	2015.04.06. 17:18 - 17:57	Ainavas, Kalkunes civil parish, Daugavpils district 55°50’7”N; 26°29’8”E	1, female (the same?)	for the third time in the same place	The description is mentioned above.	photo, video	M.Pupiņš, A.Pupiņa
17	2015.06.07.	Silene, Daugavpils district 55°45’56.87”N; 26°46’5.74”E	1, male	once	Feeding near to road	no	V.Vahruševs

The majority of previously published places of observation of *Phasianus colchicus* were located in the central and western parts of Latvia, frequently not very far from major cities. In this research, *Phasianus colchicus* were for the first time registered in the south-eastern part of Latvia not far away from such cities as Daugavpils and Kraslava, as well as next to the borders with more southern countries, namely, Lithuania and Belarus (Fig. 5).

The sale and purchase of *Phasianus colchicus* as the vector of the species spread in Latvia. The analysis of the proposals on the Internet to sell and buy *Phasianus colchicus* in Latvia (www.ss.lv) shows that 10 proposals regarding the purchase and sale of different sex, breed and age pheasants, including their pairs and groups, were published on the Internet in March and April 2015. There was published one of these proposals regarding the sale of a pair of “game pheasants” in Daugavpils and in the district. The price of one bird was 15 to 30 EUR.

Hunting as a source of introducing *Phasianus colchicus* in nature

For the purpose of hunting, the pheasants which have been previously bred in zooculture, grown and kept in aviary and in-cage conditions are released into a hunting area on a hunting day. Pheasants are shot down with guns. Specially trained dogs are used for hunting. The analysis of the proposals published on the Internet regarding commercial hunting for *Phasianus colchicus* and hunters’ feedbacks showed that such hunting is specially organized in Latvia (Table 2). Hence, a proposal regarding such hunting was published by a company in 2015 which is located

in the Daugavpils district, Demene, Silene Nature Park, the territory of Natura 2000 (http://medibaslatgale.lv/). Hunting here is available during three seasons: from 01 August to 30 September; from 01 December to 31 March; from 01 October to 31 November. The cost of the hunting varies from 270.35 € to 455.32 € per each client. 10 to 20 pheasants are released into nature for each hunter, the organizers provide a client with a hunting licence. We also noticed that Latvian hunters participate in such hunts in Belgium wherein they shoot down dozens of pheasants per one hunt (http://www.medniekiem.lv). From released in 2015 in one hunt 194 pheasants in Latvia, only 94 shot down, 100 (more than 50%) escaped (Table 2).

DISCUSSION

Distribution

Previously published data on the observation of *Phasianus colchicus* in Latvia since 2005 and our own data are generalized in the present research. The observations of a group of *Phasianus colchicus* and a single female have been described for the first time for south-eastern Latvia in the research, as well as the observation here of a male of *Phasianus colchicus* by a hunter. 17 cases of observation of *Phasianus colchicus* have been totally registered in Latvia over ten years' time.

The vectors of introduction of *Phasianus colchicus* into nature and its spread in Latvia.

The last know attempt to purposefully introduce *Phasianus colchicus* into Latvia, based on unspecified data, was made 34 years ago in 1981 (Celmiņš 2015). We could not find any published data on more recent attempts to purposefully introduce *Phasianus colchicus* into Latvia. Apparently, at present such an introduction would be complicated due to the increasing requirements of environmental legislation in Latvia, or it would be illegal. Therefore, we consider such a purposeful introduction of the species doubtful.

Along with that, an implicit, sufficiently massive and regular introduction of *Phasianus colchicus* into nature of Latvia is taking place at present. The reason for this is commercially organized hunting for pheasants in Latvia. Based on the data received by us, up to 20 specimens of *Phasianus*

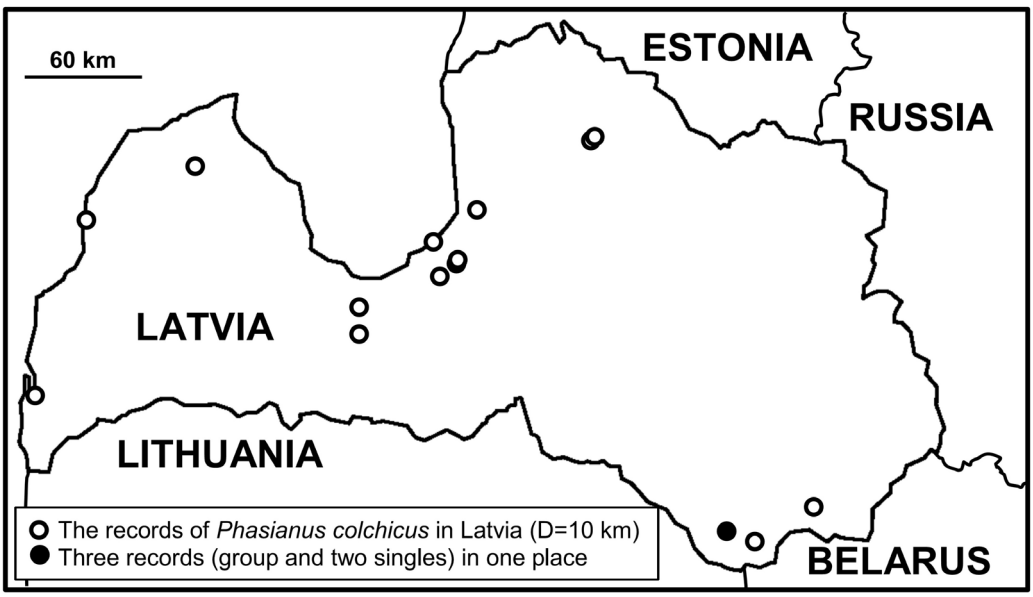

Fig. 5. The distribution of observation places of *Phasianus colchicus* in Latvia since 2005.

Table 2. A proposal regarding commercial hunting for *Phasianus colchicus* and hunters' feedback in Latvia

Year	Place	Number of pheasants	Description
2015	Krastkalni, Demene, Daugavpils district, 55°42'32"N; 26°41'9"E	offered 10-20 pheasants per each hunter	A proposal regarding commercial hunting. http://medibaslatgale.lv
2015	Lielvarde district	released 194 pheasants, 94 shot down; 100 (51,5%) escaped from hunters and stay alive in wild.	hunter's feedback, V.Vahrusevs, pers. comm.
2015	56°53'29"N 25°11'08"E	93 shot down pheasants	A hunter's feedback, a photodocument http://www.medniekiem.lv/trophy/12030/mk-plauzi-2015-fazani/
2014	56°54'06"N 21°39'39"E	>54 shot down pheasants	A hunter's feedback, a photodocument http://www.medniekiem.lv/trophy/10966/fazani-un-bebrs/
2014	56°51'57"N 25°20'31"E	~7 shot down pheasants	A hunter's feedback, a photodocument http://www.medniekiem.lv/trophy/10778/fazanu-medibas/

colchicus are released into nature for such hunting per one hunter, the amount of which reaches 10 or more people during one hunt. The amount of shot down *Phasianus colchicus* may reach hundreds per one hunt. It is obvious that some of the released *Phasianus colchicus* may escape (till 50% or 100 specimen in one hunt in the research) from hunters and stay alive in wild.

It is also probable that some specimens periodically get into the nature of Latvia having escaped from the owners of private bird collections which are very popular and widely spread in Latvia at present. Possible, the birds can migrate from other countries al Estonia, Lithuania, and Belarus.

The possibility of survival and naturalization of *Phasianus colchicus* in wild in Latvia. In this research, we could not find any data on observation of nests or young *Phasianus colchicus* in Latvia within the study period. However, it is known from publications about a successful nesting of specially introduced *Phasianus colchicus* into Latvia within some period of time, which, nevertheless, did not result in the formation of an independent population (Celmiņš 2015).

It is probable that the group (Table 1, Registration number 13) and single specimens (Table 1, Registration numbers 15, 16) observed by us in 2015 may have successfully overwintered in Latvia due to this year's unusually warm winter. Along with that, taking into account the distance of 19 km on the straight from the observation place to the hunting farm which proposes hunting for pheasants including from 01st of December to 31st of March (http://medibaslatgale.lv/), those might be the pheasants released into nature from December to March.

The main factors hindering the formation of independent populations and the naturalization of the pheasant in Latvia are the climate (regular severe winters) and natural enemies (Celmiņš 2015), namely, predators and parasites. For *Phasianus colchicus* released in wild in Ireland was found that „The death rates per 10 days after release were approximated as 5.5% during the first 30 days, 11.6% between 31–70 days, 6.0% between 70–240 days and 2.3% between 241–365 days. The birds suffered their highest rate of loss (48.2%) during their first 10 days after leaving the release pen" (Robertson 1988).

Contrariwise, the climate in the north of the natural habitat of *Phasianus colchicus* in the Far East (Beme et al. 1987) (Fig. 6) is comparable to the climate of Latvia and even colder by some measures.

"The average annual air temperature in Latvia is +5.9°C. The year's warmest month is July, its average temperature is +17.0°C and average maximum temperature +21.5°C. The coldest months are January and February, when the average temperatures are -4.6 and -4.7°C, and average minimums -7.5 and -7.9°C. So far, the highest observed temperature in Latvia is +36.4°C, the lowest: -43.2°C." (Latvian Environment...).

The absolute maximum temperature in Vladivostok is +34.1°C in vicinity of which reside *Phasianus colchicus*. The average temperature in January is −12.6°C. The absolute minimum temperature is −31.4 °C. Cold and dry continental air and clear frosty weather predominate in Vladivostok during the winter period. The average length of the winter period is 132 days starting on the 13th of November and finishing on the 23rd of March. In Vladivostok, spring is quite long; it lasts from the 24th of March till the 25th of June (with the transition of the daily average temperature through 0° C upwards). The daily average temperature of the air sets above +5°C, on average, on the 15th of April. Night frosts usually cease during the first half of April (Klimat Vladivostoka).

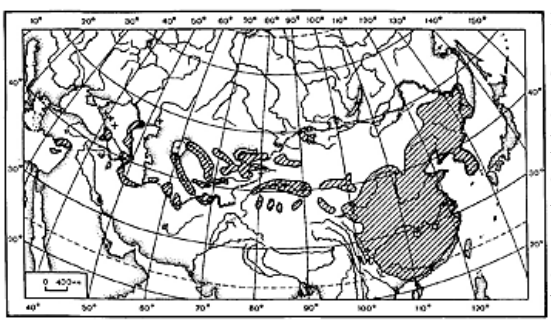

Fig. 6. The northern border of the distribution area of *Phasianus colchicus* in the Far East (Beme et al. 1987).

In order to assess the possibility of successful overwintering of *Phasianus colchicus* in Latvia, it is also worth taking into account that in the north of their natural habitat, they perform regular, massive, seasonal migrations in groups or as single specimens on large distances (sometimes up to 200 km on the straight) from the places with a snow cover of considerable depth to the areas with little or no snow at all (Beme et al. 1987). For America it is known, that a „1°C increase in the mean weekly maximum temperature decreased the probability of death by 0.06 and a 2.5 cm increase in new snow raised the probability of death by 0.08" (Homan et al. 2000). *Phasianus colchicus* was added to the List of invasive allochthonous species of Estonia (Kangur et al. 2005). It is no doubt that when further assessing the possibility of naturalization and formation of sustainable populations of *Phasianus colchicus* in Latvia, it is necessary to take into account both the possibilities of its seasonal migration and a clear tendency toward climate warming in the region and mitigation of winters in Latvia (Latvian Environment...).

Phasianus colchicus needs for no-cut grass: total number (mean no. per visit) of *Phasianus colchicus* before grass cutting was 24 (0.324), and after grass cutting - 0 (0) (Peggie et al. 2011). In the place of three observation of *Phasianus colchicus* in Latvia (Daugavpils district), a meadow was uncut since 1995. There are many areas in South-East part of Latvia with uncut grass for many years.

The data on ecology of *Phasianus colchicus* in Latvia

Taking into account that only 17 cases of observation of *Phasianus colchicus* have been known in Latvia since 2005, there is no complete data on the peculiarities of its ecology in this territory. However, having generalized the known single cases of observation (a registration number of observation is further indicated in square brackets, Table 1) in Latvia, it can be said that *Phasianus colchicus* was encountered here on the edges of fields [7, 12] and meadows [2]. *Phasianus colchicus* comes to roads [3, 7, 17]

and does not avoid staying near houses [1, 5, 6, 13, 15, and 16]. In search for food, it comes to gardens [13, 14, 15, and 16] in winter and early spring wherein it actively feeds on last year's apples [13, 15, 16]. *Phasianus colchicus* moves on the ground [16] to stamping grounds and flies at a height of not less than 2 m [15]. It feeds at the same place for 40 minutes up to two and a half hours at mornings and evenings [15, 16]. Vocalizing *Phasianus colchicus* was heard in Latvia in May and June [9]. *Phasianus colchicus* may overnight on the crowns of fir trees [6]. Probably, *Phasianus colchicus* is able to overwinter in Latvia by forming groups of some specimens [13]; in winter, it can feed on last year's apples dug out of a 4-6 cm deep snow cover by *Capreolus capreolus* [13].

A possible impact of *Phasianus colchicus* on the Latvian ecosystems. In case of successful naturalization in Latvia, *Phasianus colchicus* will be integrated into existing ecosystems.

For example: releasing *Phasianus colchicus* in woodlands in United Kingdom for game shooting is a widespread practice. The pheasant-managed woods had a more open structure, with between 2% and 7% less canopy cover and a denser field layer with between 5% and 58% more ground vegetation cover. The researchers recorded approximately 40% more birds in woods in southern England and between 22% and 32% more birds were observed in pheasant-managed woods than control woods. The researchers conclude that the impacts of pheasant releasing on vegetation structure and bird communities in woodlands are benign or positive (Draycott et al. 2008).

The diet of *Phasianus colchicus* which is described in literature is very diverse and includes more than 160 different plant species. The birds also feed on many animals, primarily different insects, spiders and mollusks, as well as small lizards, snakes and small rodents. There is no special selectivity what concerns feeding, and the basis of the diet constitutes various plant and animal species. In Primorye, pheasants dig small potatoes out of the fields (Beme et al. 1987). *Phasianus colchicus* easily coexists with human unless the latter pursues the former, and it is capable of finding all the necessary food in agrocoenosis, especially in those places where gardens intersperse with fields and small areas overgrown with wild shrubs (Beme et al. 1987). There are many such territories in Latvia as well. *Phasianus colchicus* may serve as a prey for various predators in Latvia. The adult and young pheasants, their young and egg-laying are exterminated by Mammalia: *Vulpes vulpes*, *Nyctereutes procyonoides*, stray dogs and cats, *Martes sp.*, *Mustela nivalis*, *Mustela erminea*, *Mustela putorius* and other species; birds: *Accipiter gentilis*, *Buteo buteo*, *Corvus cornix*, *Pica pica*, *Garrulus glandarius* and other bird species in the natural and anthropogenic habitats at different time of the year (Kenward et al. 2001, Litus 2015). Most of the mentioned predator species are widely spread in Latvia and invasive *Nyctereutes procyonoides* is native predator from original areal for *Phasianus colchicus*.

By assessing the possible impact of introduction of even single specimens of *Phasianus colchicus* into nature on Latvian ecosystems, it is worth noting that it may become the source of importation of allochthonous parasites into the nature of Latvia, including both the imported ones from the natural and anthropogenic habitats of *Phasianus colchicus* and the acquired ones while being kept in zooculture together with other exotic bird species (Arnastauskene et al. 1970; Pinto et al. 2004; Cavanagh 2005; Dipineto 2008).

Phasianus colchicus might also become a new propagation vector of the parasites already encountered in Latvia. Its role as the propagation vector of parasitofauna is greatly enhanced taking into account the peculiarities of organized hunting for *Phasianus colchicus* in Latvia – the release of hundreds of domestic *Phasianus colchicus* into nature in various parts of Latvia, transportation of killed *Phasianus colchicus* through the whole territory of Latvia, delivery of dozens of shot down *Phasianus colchicus* by hunters form the territories of other countries.

CONCLUSIONS

In this research, the cases of observation of a group and individual specimens of *Phasianus colchicus* have been registered for the first time in south-eastern Latvia (Daugavpils district, Kraslava district). The registration of observations of the allochthonous species in Latvia may be useful for specialists in different fields (ornithologists, parasitologists, environmentalists, nature conservationists etc.) for a better understanding of influence of climate changes, of anthropogenic changes in biodiversity and ecosystems in the Baltic region.

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