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THE EVALUATION OF THE STRENGTHS OF LONG-EARED OWL (*ASIO OTUS*) THAT WINTERED IN THE ARGEŞ COUNTY (2014-2015). PRELIMINARY STUDY.

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Abstract
In this paper, the authors present the results of the Long-eared Owl (Asio otus) census performed in 2014 - 2015 winter in the Argeş County (Romania). The exact place of the birds agglomerations, the characters of the roosting place, degrees of protection against the wind, the direction of the roosting place in relation to the closest building, endangering and disturbing factors, the disturbing degree, other information regarding the roosting place were analysed. Four places of roosting were identified in Suseni, Rociu, Negraşi and Slobozia. 0.94 individuals per km of road, 14.11 individuals per roosting place and 0.067 roosting places per km of road were estimated. In the Romanian Plain of the Argeş County, there are in average 47.98 individuals/100 km^2 (3.4 roosting places/100 km^2) and approximately 655 individuals (gathered in ca. 46 roosting places) and in the entire Argeş County, there are ca. 800-1100 individuals and 60-80 roosting places. The mean of the owls' number per tree in the roosting place was 6.57. It has been found that between November and March, the number of individuals generally grows as the air temperature raises and generally decreases as the depth of the snow bed increases. The number of individuals correlated the best with the average air temperature in the previous 30 days and with the average depth of the snow bed in the previous 30 days.

Keywords: Asio otus, winter census, Argeş.

1. INTRODUCTION

The evaluation of the strengths of the Long-eared Owl (*Asio otus*) in 2014 - 2015 winter in the Argeş County was realised on the occasion of the census of the Long-eared Owl (*Asio otus*) in Romania. This is a program initiated in 2009 by the International Long-eared Owl Network (ILEON) and coordinated in our country by the Association for bird and nature Protection "Milvus Group". It is necessary for the estimation of the population that remains here in winter and, also, it serves to determine the habitats used by the Long-eared Owls and to establish the anthropogenetic factors that threat them in this period (http://milvus.ro/).

2. MATERIALS AND METHODS

The Argeş County is placed in the Southern part of the Meridional Carpathians. It has a great variety of relief, from the highest point of the Romanian mountains (Moldoveanu Peak – 2544 m, from Făgăraş Massif) to the Romanian Plain (the lowest elevation – nearly 140 m). The Argeş is the river that drains the most part of the area, crossing the mountains (where it has its origins), the submountain region, the hills of the Getic Piedmont and the High Plain of Piteşti, component of the

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Romanian Plain (Figure 1). The mountains occupy 25% of its territory (that measures 6826.3 km^2), the hilly area, 55% and the plain area, 20% (http://www.arges.insse.ro). The main tributaries of the Argeş River are: Dâmbovița, Râul Doamnei, Vâlsan, and Neajlov. Topolog and Vedea (through Cotmeana and Teleorman) are the other two rivers that collect the waters of the Argeş County (in west, respectively south and south-west). The clime of the area is temperate-continental, with mountain features in North and with aspects of plain in South.

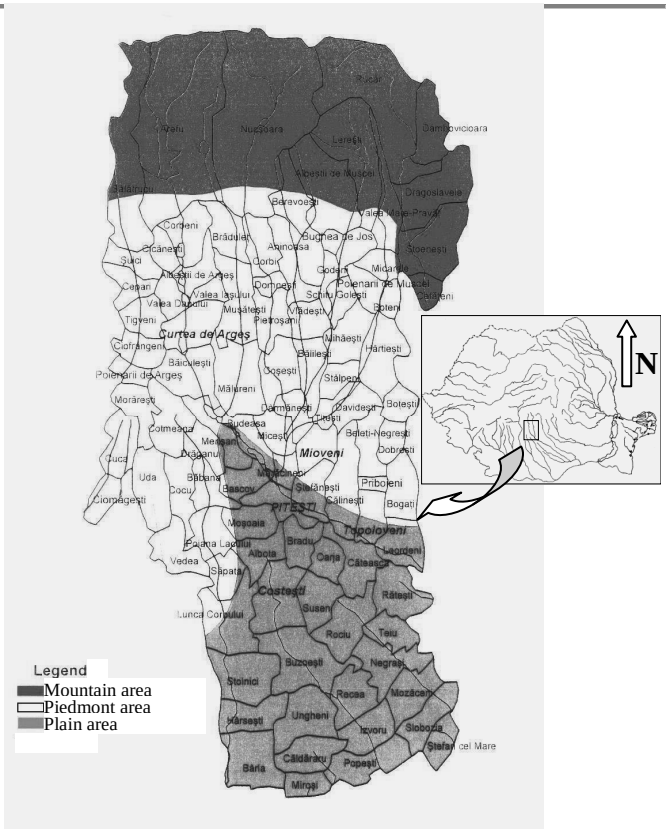

Figure 1. The map of the Argeş County, with the main forms of relief (by http://www.arges.insse.ro, modified)

The plants and animals are diverse and, generally, they are specific to the Southern part of Romania. The mountains are covered by grasslands on the heights. The lower stages represent the domain of the forests, where there are large woodlands of Norway spruce (*Picea abies*), European beech (*Fagus sylvatica*), and oak (*Quercus* sp.) (in the inferior zone). The hills are propitious for the orchards and the plain is favourable for agriculture. The fauna is well represented, many small vertebrates (mice, rats, frogs, little birds) and invertebrates (mainly insects) representing the food for the Long-eared Owls (Ciochia, 1992).

The human settlements are present over the whole Argeş County, mainly along the rivers and less in the high mountain regions.

The Long-eared Owl is a bird of the Strigiformes order. It breeds in the forests near the open areas, in the copses next to arable fields, in parks etc. In passage and in winter, gathers in flocks in dense trees or bushes from the favoured sites for communal roosts. It occurs in Europe, Asia, North America and northern Africa. The northern populations migrate toward southern wintering quarters (Svensson et al., 2009). In Romania, it is catalogued as resident bird. In winter, it stays sometimes in towns (Bruun et al., 1999). Even if it registered a decline in the last years, because of its extremely large range, the species is evaluated as Least Concern (http://www.iucnredlist.org).

The field method consists in the identification of the wintering places of the Long-eared Owls through the verifying of the groups of trees occurred on the impose track and, complementary, through discussion with the natives. In conformity with the online form (http://milvus.ro/), the exact place of the birds agglomerations (street, number and GPS coordinates), the characters of the roosting place (park, line of trees, grove, schoolyard, yard of public institution, private yard, church yard, cemetery, other), degrees of protection against the wind (big constructions near the roosting place, trees with dense and protector canopy, other), the direction of the roosting place in relation to the closest building, endangering and disturbing factors (trees cutting, intentioned derange, birds killing, through poaching, for instance, the presence of the raptors, the build restoration or the renovation, the transformers or electrocution, other), the disturbing degree (small, intermediate, big), other information regarding the roosting place were noted. The field researches were

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performed from November to March in the middle week-end of every month (November 14, 2014, December 12, 2014, January 9, 2015, February 13, 2015 and March 13, 2015). The last field work was optional, but we considered it important. The birds were numbered during the day at the roosting places. We registered, every time, all individuals of owl observed each roosting place and the number of birds sitting every tree. Also, the meteorological conditions were recorded.

Because of transportation costs, for this study we choose as track the road that links Piteşti with Slobozia (approx. 60 km length) from the Romanian Plain. In this area, the climate has obvious plain traits. The annual average temperature of the air is 10 ^{0}C and the average temperature of the air in January is -3 ^{0}C. The annual average quantity of precipitation is nearly 600 mm and the monthly quantity of precipitation is between 30 and 40 mm (in Mozăceni). The frost is situated between November, 8 and April, 17. The average number of days with covered sky is 132.5 (in Piteşti). The annual average number of snowing day is 20 (in the south of county) and the period with the soil covered by snow is circa 50 days. The wind blows predominantly on East-West direction (Barco & Nedelcu, 1974).

In the days of the field observations, the weather conditions at Piteşti Weather Station (cf. rp5.ru) were normal for the respective time of the year. The temperature of the air, measured at 8:00 and 2 m height above the soil, decreased from the maximum registered in November (8.6 °C) to the minimum registered in January (-11.6 °C), after that it increased again (-1.9 °C, in March). The depth of the snow bed, measured on the same occasion, varied in opposite manner. It increased from the minimum value (0 cm), registered in November (and December), to the maximum value (12 cm), registered in January and, subsequently, decreased. The average air temperature on previous 7, 15, and, respectively, 30 days, and the average depth of the snow bed on previous 7, 15, and, respectively, 30 days fluctuated similarly. At the moment of observations, the nebulosity varied between 0% (in February) and 100% (in November). Also, the wind (on Beaufort scale) was 0 or 1 (only in December) and the precipitations did not exist (Table 1).

Table 1. The weather conditions in the day of the field observations at Piteşti Weather Station.

Weather parameters	November 14, 2014	December 12, 2014	January 9, 2015	February 13, 2015	March 13, 2015
Air temperature, at 8:00 (°C)	8.6	1.3	-11.6	-3.1	1.9
Average air temperature on previous 7 days (°C)	9.5	2.8	-3.2	-0.8	3.8
Average air temperature on previous 15 days (°C)	7.9	1.5	-3.7	0.7	5.1
Average air temperature on previous 30 days (°C)	9.2	3.1	0.5	1.9	3.5
Nebulosity (%)	100	40	90	0	10
Wind on Beaufort scale	0	1	0	0	0
Precipitations	-	-	-	-	-
Depth of the snow bed, at 8:00 (cm)	0	0	12	7	0
Average depth of the snow bed on previous 7 days (cm)	0	1.7	14.1	10.2	0
Average depth of the snow bed on previous 15 days (cm)	0	5.1	18.7	10.2	0
Average depth of the snow bed on previous 30 days (cm)	0	5.1	18.7	8.7	3.0

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3. RESULTS AND DISCUSSIONS

During the census performed between November 2014 and March 2015 in the plain area of the Argeş County, four places of roosting for the Long-eared Owl (*Asio otus*) were identified (Table 2, Figure 2). They are situated between 150 m and 278 m altitude (in average: 219.25 m) in the following localities: Suseni (Burdeşti), Rociu, Negraşi (Bârlogu) and Slobozia. From Piteşti (the administrative town of the county), they are positioned toward SE at: ca. 15 km (Suseni), ca. 25 km (Rociu), ca. 30 km (Negraşi) and ca. 47 km (Slobozia). The distance between two adjoined roosting places varied from 5 km (Rociu-Negraşi) to 17 km (Negraşi-Slobozia), the mean being 10.66 km. By comparison, twelve winter roosts of Long-eared Owls 2–20 km apart and 14 sites of wintering solitary owls were found in Moscow, 1091 km^2 (Sharikov et al., 2013). The main protection against the wind was due to: trees with dense canopy (in Suseni and Rociu) and trees with dense canopy and buildings (in Negraşi and Slobozia). The direction of the nearest constructions (in brackets, we mentioned the direction to the further ones) was: West (and North) in Suseni, East (and South) in Rociu, West (and South) in Negraşi, and West (and North and East) in Slobozia but, practically, all the roosting places were situated in the proximity of the buildings. Thus, they were well protected against the major winds that blow in the area (on E-W direction). Although all sites of roosting were placed in the proximity of the road (bellow 50 m distance), the birds did not seem disturbed by the traffic. However, looking insistently and from a small distance (less than 3-4 m), they adopted an erect and sleek posture or flew away. If, against the direct perturb caused by people, the birds are well guarded, for the reason that the residents (because they are superstitious) believe that it is not good to scare them, in the case of the cutting of the trees, they are more exposed, mainly in Suseni and Rociu, where in the recent past years, some coniferous trees from the roosting places were cleared. In the first case, more trees (representing the main place of gathering) were stubbed and in the second, one. In Slobozia, the situation is better, because the Long-eared Owls stay preponderantly in the yard and the garden of a citizen (Mr. Alexandru Nițu, presently, the major of the community) that likes the birds and we thank him for that.

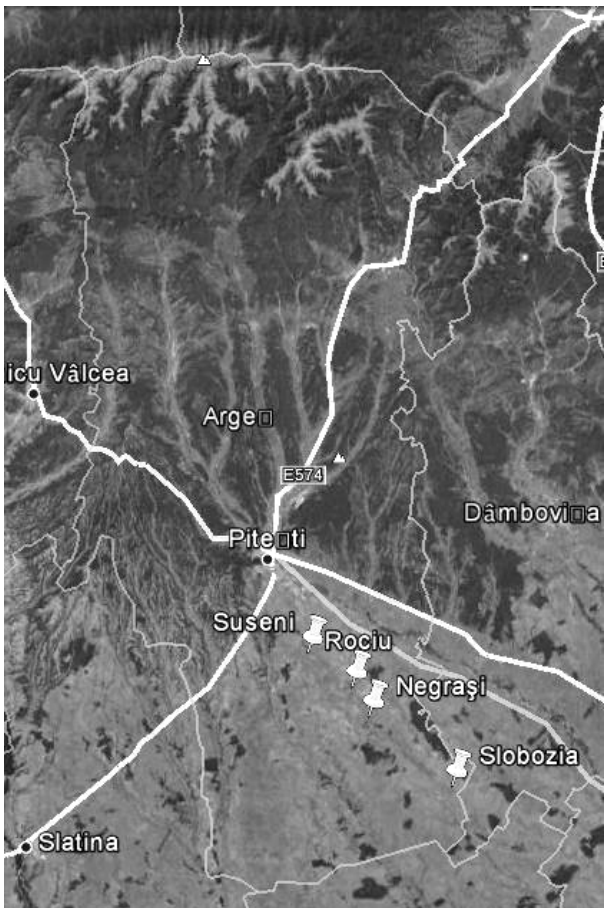

Figure 2. The distribution of the roosting places on the map of the Argeş County (in Google Eart view).

Table 2. The geographical coordinates and the altitude of the roosting places.

No.	Locality	Latitude (°N)	Longitude (°E)	Altitude (m)
1	**Suseni**	44.7218	24.9512	278
2	**Rociu**	44.6707	25.0421	233
3	**Slobozia**	44.5235	25.2483	216
4	**Negraşi**	44.6268	25.0769	150

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The number of individuals varied from month to month and from place to place (Table 3). Firstly, we must say that the place of roosting from Negraşi was registered at the latter field observation (March 13). For Suseni, Rociu and Slobozia, where the observations were performed every month from November to March, the minimum value was inventoried in Rociu (0 individuals, January 9) and the maximum one, in Slobozia (50 individuals, February 13). In Suseni, all observations summed 65 individuals (26.00% of all individuals, except Negraşi), in Rociu, they summed 24 individuals (9.60%) and, in Slobozia, they summed 161 individuals (64.40%). The total number of individuals from Suseni, Rociu, and Slobozia was the biggest in February (73) and November (68) and the smallest in March (31), but also, in January, a small number was recorded (32). They summed per total 250 individuals. In other sites from Europe, the number of Long-eared Owls varied on a convex curve, with the maximum in December, in Milan, in Southern Europe (Pirovano et al., 2000) or with the peak in December (7 years) or January (2 years), in Moscow, in the north of the winter range (Sharikov et al., 2013). At the census from Romania (2014-2015 winter) 1365 individuals were registered in November, 2126 individuals, in December, 2111 individuals, in January and 1240 individuals, in February (http://milvus.ro/).

Proportionally with the monthly evolution of the all individuals from the other places, we presume that the biggest number of individuals from Negraşi was 9-10, in February. A total number, of approx. 32 individuals, was calculated in this location. The estimated number for all four places of roosting is about 282 individuals. Consequently, it results 0.94 estimated individuals per km of road and 14.11 estimated individuals per roosting place at every observation. Other studies: maximum 76 individuals/roosting site, the mean, 10.2, in Milan (Vicini et al., 1991, in Pirovano et al., 2000, Pirovano et al., 2000) and maximum 9 individuals/roosting site, the mean, 2.1, in Moscow (Sharikov et al., 2013). In contrast, in southern European Russia winter roosts vary from several tens up to 300 Long-eared Owls (Konstantinov et al., 1982, in Sharikov et al., 2013, Tilba & Mnatsekanov, 2005, in Sharikov et al., 2013, Sharikov, 2006, in Sharikov et al., 2013). Also, in Romania, in 2014-2015 winter, the number of individuals/communal roost exceed 100 birds: Andu Cristudor registered 105 individuals in Grădiştea (Ilfov) on December 30, 2014, Daróczi J. Szilárd and Gyékény Gertrúd recorded 109 individuals in Sărmaşu (Mureş) on January 10, 2015, Kiss István registered 110 individuals in Satu Mare (Satu Mare), on February 13, 2015, again Kiss István recorded 124 individuals in Satu Mare (Satu Mare), on January 12, 2015, and Radac Alexandru registered 176 individuals in Timişoara (Timişoara) on December 12, 2014. Finally, the same Rădac Ioan-Alexandru noted 235 individuals in the same location (Timişoara) on November 16, 2014 (http://milvus.ro/)

Also, 0.067 roosting places per km of road was determined.

The density of public roads in Argeş is 51 km/100 km^2 (cf. http://www.arges.insse.ro), but it is not uniform. Because all places of roosting were found in the Romanian Plain, we can say that in this area of the Argeş County there are in average 47.98 individuals/100 km^2 (3.4 roosting places/100 km^2) and an estimated total number of 655 individuals (gathered in ca. 46 roosting places).

However, in this assessment some aspects should be noted: 1) on the track of observation it is possible to have omitted few places of roosting and some individuals scattered from the main roosting sites; 2) the distribution of the roosting places is unequal: all the observed places of roosting were registered in localities but other such places are probably far from roads, in groups of dense trees from agricultural terrains or in forests, mainly woodsides – in the Romanian scientific literature, i. e. the Branişte oak forest, from Dolj county (Murariu et al., 1982), the Ştefăneşti oak forest, near Bucharest (Murariu et al., 1991); in addition, in localities, the density of the public road is bigger than outside.

Considering that the length of the public roads from Argeş is 3481 km (cf. http://www.arges.insse.ro), here there are in average 3272.14 individuals, which are grouped in 232.07 roosting places. In reality, these numbers are smaller (we estimated 800-1100 individuals

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and 60-80 roosting places), because, according to our sporadic observations from the previous years, few individuals winter in the hilly area and, especially, in the submountain one. These considerations are supported by the distribution on altitude of the communal roosts at the national level, too. Here, Satu Mare was the county with the biggest number of individuals and places of roosting identified (maximum 1002 individuals, in January, respectively 31 communal roosts, in December). The southern and eastern regions of Romania were poorer represented, mainly because of the lack of observers (http://milvus.ro/).

Regarding the trees used as roosting support, in Suseni the birds occupied willows (*Salix* sp.), pear trees (*Pyrus comunis*), apple trees (*Mallus domestica*) and plum trees (*Prunus domestica*) from few private yards and gardens, in Rociu they used a Norway spruce (*Picea abies*) from a private yard, in Negraşi they used a plum tree from a private yard and a public institution yard and in Slobozia, they used three Norway spruces, one fir (*Abies* sp.), one mulberry (*Morus* sp.) and one apple tree from private yards and gardens.

Excepting the roosting place from Negraşi, the minimum number of occupied trees was 6 (in January, respectively March) and the maximum one was 10, in February (Table 3). Rarely, one bird was seen in a tree (generally they preferred to stay more than one together in a tree); the most of the same cases was registered in February. The mean of the owls' number per tree was 6.57 (for the whole period); the minimum was 5.16, in March, and the maximum was 7.55, in November.

Table 3. The statistics regarding the individuals on days and places of observations.

Date (month /day /year)	November	December	January	February	March	Period
No. individuals Suseni	25	12	6	15	7	65
No. individuals Rociu	5	9	0	8	2	24
No. individuals Slobozia	38	25	26	50	22	143
No. individuals Negraşi	0	0	0	0	4	4
No. estimated individuals Negraşi	8.77	5.93	4.12	9.41	4	32.25
No. estimated of all individuals	76.77	51.93	36.12	82.41	35	282.25
No. estimated of individuals/km of road	1.27	0.86	0.60	1.37	0.58	0.94
No. estimated individuals/roosting place	19.19	12.98	9.03	20.60	8.75	17.64
No. individuals*	68	46	32	73	31	250
No. occupied trees*	9	7	6	10	6	38
No. occupied trees by a single bird*	0	0	1	2	1	4
No. occupied trees by a single bird/no. occupied trees (%)*	0	0	16.66	20	16.66	10.52
Mean Long-eared Owls/tree*	7.55	6.57	5.33	7.3	5.16	6.57
No. of species of occupied trees*	3	2	3	5	4	7

* - only for Suseni, Rociu, and Slobozia places of observations.

As species of trees (except the Negraşi station), the birds used willow, Norway spruce and mulberry, in November, willow and Norway spruce, in December, again willow, Norway spruce and mulberry, in January, willow, pear tree, plum tree, Norway spruce, and fir, in February, and Norway spruce, fir, pear tree, and apple tree, in March, so that, between November and March, they were seen in seven species of arbores: Norway spruce, fir, willow, mulberry, pear tree, plum tree, and apple tree. The most preferred species of roost was the Norway spruce, in 50% of cases (by the occurrence in the sites of observation) and the Norway spruce, in 46.15% of cases, and willow, in 30.76% of cases (by the number of occupied trees). The majority of individuals were recorded in Norway spruce (56.80%), willow (18.00%) and mulberry (12.40%). The number of Norway spruce

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trees occupied by birds remained relatively equal every month (3-4 trees) while the number of willow trees constantly decreased from November to March, because of the increasing number of leaves lost (Table 4). The number of Long-eared Owl' individuals had a similar variation in the case of willow tree. The lost of leaves had somewhat the same effect in the case of mulberry (Table 5).

Table 4. The monthly variation of the number of occupied trees (without Negraşi site).

Species of trees	November	December	January	February	March	Period
Norway spruce	4	4	3	4	3	18
Willow	4	3	3	2	0	12
Fir	0	0	0	1	1	2
Pear tree	0	0	0	1	1	2
Plum tree	0	0	0	2	0	2
Mulberry	1	0	1	0	0	2
Apple tree	0	0	0	0	1	1

Table 5. The monthly variation of the number of individuals in relation with the species of occupied trees (without Negraşi site)

Species of trees	November	December	January	February	March	Period
Norway spruce	18	34	20	56	14	142
Willow	25	12	6	2	0	45
Fir	0	0	0	2	1	3
Pear tree	0	0	0	4	7	11
Plum tree	0	0	0	9	0	9
Mulberry	25	0	6	0	0	31
Apple tree	0	0	0	0	9	9

We try to find some correlation between the number of individuals and the temperature of the air, respectively the depth of the snow bed. Considering the number of individuals registered in Suseni, Rociu and Slobozia, in the first case, the best correlation was between this number and the average air temperature in the previous 30 days (0.46 – positive correlation and fair degree of linear relationship) but a comparable correlation was between this number and the air temperature, at 8:00, in the day of observation, too. In the second case, the best correlation was with the average depth of the snow bed in the previous 30 days (-0.37 – negative correlation and fair degree of linear relationship). This means that, between November and March, the number of individuals generally grows with the increase of the air temperature; instead, this number generally decreases with the increase of the depth of the snow bed. It reacts in the best way to the temperature of the air, respectively, the depth of the snow bed, record on long term (30 days), (Table 6). These are obvious, because the air temperature and, principally, the depth of the snow bed determine the food availability, fact evidenced by other authors, which, also, stated that the wind and the precipitations have had a smaller importance. The temperature is an indirect factor, because it influences the snow condition (Sharikov & Makarova, 2014). They studied the pellets from a roosting site in Moscow, where the pray consisted, in majority, in common voles (*Microtus arvalis*). The proportion of bird pray was relatively low and it developed as the precipitation increased. *Microtus arvalis* was the most important prey in Rzeszów, a city in south-eastern Poland (Dziemian et al., 2012), too. In Romania, the researches also proved the important role of the rodents in the winter diet of the Long-eared Owls. Birds gathered in a forest from Dolj County, near the Danube, consumed principally

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Microtus arvalis and *Mus musculus spicilegus* (Murariu et al., 1982) and in a forest close to Bucharest the mice (*Apodemus* sp.) predominated (Murariu et al., 1991). In Satu Mare County (Satu Mare town and Cefa Nature Park Reserve from Western Plain) the diet was dominated by *Microtus arvalis*. Because, in winter, it moves under the snow cover, alternative food resources (the mice) were exploited (Benedek & Sârbu, 2010). In Bucharest, the murid species (*Mus musculus* and *Apodemus sylvaticus*) had the best representation between the components of food (Laiu & Murariu, 1998). Equally, in two localities from the rural area from Romanian Plain, *Mus musculus* and *Mictrotus arvalis* had the highest share among the preys (Laiu et al., 2003). A special case is the Danube Delta, where the birds that are prey predominated (*Passer domesticus*, *Carduelis carduelis*, *Remiz pendulinus*) and where among the mammals, *Mus musculus* and *Apodemus* sp. prevailed. The unique habitat pattern in the area may be the cause of this situation (Sándor & Kiss, 2008). Regarding the predated biomass, in some urban areas (Milan, Bucharest), *Rattus norvegicus* is dominant (Laiu & Murariu, 1998, Pirovano et al., 2000).

However, in the southern part of Europe (Milan region, from Italy) the winter aggregations of Long-eared Owls appeared to be strongly linked to a photoperiod of nine days before the counting session and a clear link with the temperature was not found (Pirovano et al., 2000). Other studies from southern Europe show that the diet is affected mostly by the amount of precipitation (Rubolini et al., 2003, in Sharikov & Makarova, 2014, Romanowski & Żmihorski, 2008, in Sharikov & Makarova, 2014) and temperature (Rubolini et al., 2003, in Sharikov & Makarova, 2014), although the importance of snow cover was pointed out (Canova, 1989, in Sharikov & Makarova, 2014). In Moscow, instead, the number of wintering owls was influenced simultaneously by the abundance of Common Vole (*Microtus arvalis*) in the previous autumn and in spring, and the owls' breeding numbers in the study plot. Among the weather factors, the most important influence on the dynamics of owls was that of the snow cover and wind jointly, though the snow was undoubtedly more significant from this point of view. The air temperature and the precipitation turned out to be almost of no importance for owl dynamics at the roosting site (Sharikov et al., 2013).

Table 6. The correlation between the number of individuals and the air temperature, respectively the depth of the snow bed.

Parameter	No. individuals (Suseni, Rociu, and Slobozia)	No. individuals (Suseni)	No. individuals (Rociu)	No. individuals (Slobozia)
Air temperature, at 8:00 (°C)	0.42	0.72	0.41	0.10
Average air temperature on previous 7 days (°C)	0.33	0.73	0.21	0.01
Average air temperature on previous 15 days (°C)	0.34	0.66	0.20	0.08
Average air temperature on previous 30 days (°C)	0.46	0.85	0.17	0.16
Depth of the snow bed, at 8:00 (cm)	-0.12	-0.41	-0.41	0.19
Average depth of the snow bed on previous 7 days (cm)	-0.05	-0.40	-0.27	0.26
Average depth of the snow bed on previous 15 days (cm)	-0.19	-0.47	-0.29	0.07
Average depth of the snow bed on previous 30 days (cm)	-0.37	-0.61	-0.44	-0.08

Considering the number of individuals separately registered for each location, the number of individuals observed in Suseni correlated the best with every regarded parameter (of the air temperature and of the depth of the snow bed). The correlations with the air temperature, at 8:00, the average air temperature in the previous 7 days, and, respectively, the average air temperature in the previous 15 days were positive and had a moderately strong linear relationship and the correlation with the average air temperature in the previous 30 days was, also, positive and had a

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very strong linear relationship. The correlations with the depth of the snow bed, at 8:00, the average depth of the snow bed in the previous 7 days, and, respectively, the average depth of the snow bed in the previous 15 days were negative and had a fair degree of linear relationship and the correlation with the depth of the snow bed in the previous 30 days was, also, negative and had a moderately strong linear relationship. Because of the small number of individuals, the correlation for Rociu had a small relevance. A strange situation was in Slobozia, where the correlations were almost always positive and had weak or no linear relationship. An unknown cause influenced, here, the presence of the individuals at the communal roost (Table 6).

4. CONCLUSIONS

During the census of the Long-eared Owl (*Asio otus*) in Romania, performed between November 2014 and March 2015, in the plain area of the Argeş County, four places of roosting were identified in rural area from the localities: Suseni (Burdeşti), Rociu, Negrași (Bârlogu) and Slobozia.

The distance between two adjoined roosting places was in average 10.66 km. The main protection against the wind was due to the trees with dense canopy and buildings.

The communal roosts were well protected against the major winds that blow in the area.

The birds were little disturbed at the roost.

The total number of individuals was the biggest in February and the smallest in March.

The locality with the maximum number of individuals for whole period (161) was Slobozia.

The maximum number of individuals/field observation was registered in Slobozia, too (50 individuals, in February).

0.94 individuals per km of road, 14.11 individuals per roosting place and 0.067 roosting places per km of road were estimated.

In the Romanian Plain of the Argeş County, there are in average 47.98 individuals/100 km^2 (3.4 roosting places/100 km^2) and approximately 655 individuals (gathered in ca. 46 roosting places).

At the level of the Argeş County, there are ca. 800-1100 individuals and 60-80 roosting places.

The mean of the Long-eared Owls' number per tree in the roosting places was 6.57 (for the whole period); the minimum was 5.16, in March, and the maximum was 7.55, in November.

The most preferred species for roost was the Norway spruce.

According to the air temperature, the best correlation was between the number of individuals and the average air temperature in the previous 30 days (0.46 – positive correlation and fair degree of linear relationship) and according to the depth of the snow bed, the best correlation was with the average depth of the snow bed in the previous 30 days (-0.37 – negative correlation and fair degree of linear relationship); this means that, between November and March, the number of individuals generally grows as the air temperature raises and generally decreases as the depth of the snow bed increases.

Primarily, the results of the census offer an image regarding the situation of the winter communal roosts of the Long-eared Owls from the south of the Argeş County and for an accurate estimation of the individuals that winter in the Argeş county, in the future it is necessary to increase the length of the covered roads from all forms of relief and, also, to visit other habitats (skirts of forest, brushwoods, agricultural terrains with groups of trees, etc.).

The applied method of the strength estimation can be the best used for the territories with homogenous forms of relief.

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