

Present situation, distribution and problems of conservation of Leisler's bat, *Nyctalus leisleri* (Kuhl, 1817), in the Ukraine

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With 1 Figure

S u m m a r y

The Leisler's bat is distributed sporadically in Ukraine, but the highest number is in the forest and forest-steppe zones. In the steppe zone this bat is noted only during the migration. The migration routes, direction of migrations are investigated insufficiently. There are no reliable observations as to the wintering of *Nyctalus leisleri* in the country. The estimated data indicate the decreasing of Leisler's bat number in the country during the second part of the 20th century. However, the objective (impartial) valuation of Leisler's bat number state and dynamic trends in Ukraine is difficult because of the insufficient level of investigations of the species. The decreasing of Leisler's bat population may be caused by reduction of summer roosts number and the degradation of habitats (quantitative regression of hollow trees, old forest area, aged wood structure changes, decreasing of potential roosts), changes of landscape structure (the changes of qualitative characteristics of foraging habitats and general economical changes of the territory (economical development, industry, urbanisation), large-scale using of herbicides. The protection of summer roosts is one of the main directions in the Leisler's bat protection. The putting up of the bat box is very effective in the places where the number of hollow trees is insufficient. Also it is important to determine the main Leisler's bat migration routes which lie across the territory of country and the conservation of the rest places or temporary stop-over places during the migrations.

Z u s a m m e n f a s s u n g

Heutige Situation, Verbreitung und Probleme des Kleinabendseglerschutzes, *Nyctalus leisleri* (Kuhl, 1817), in der Ukraine

Der Kleinabendsegler ist in der Ukraine sporadisch verbreitet, aber die höchste Anzahl ist in den Wald- und Wald-Steppen-Zonen zu finden. In der Steppenzone ist diese Art nur während der Wanderung nachgewiesen. Die Wanderstrecken, Wanderrichtungen sind ungenügend untersucht. Es gibt keine zuverlässigen Beobachtungen über die Überwinterung von Kleinabendseglern in diesem Land. Die geschätzten Daten deuten auf eine Verringerung der Anzahl von Kleinabendseglern während der zweiten Hälfte des 20. Jahrhunderts hin. Wie auch immer, die objektiven (unvoreingenommenen) Schätzungen des Bestandes von Kleinabendseglern und der dynamischen Trends in der Ukraine sind schwierig, insbesondere wegen des ungenügenden Niveaus der Schätzungen dieser Art. Die Abnahme der

Kleinabendseglerpopulation ist vielleicht begründet durch die Reduzierung der Anzahl der Sommerquartiere und der Verminderung der Habitate (quantitative Rückentwicklung von Baumhöhlen, altem Waldgebiet, der Altklassenzwälder, Abnahme der potentiellen Quartiere), Veränderung der Landschaftsstrukturen, Veränderungen der Eigenschaften der Jagdhabitate und allgemeine ökonomische Veränderungen des Gebietes (wirtschaftliche Entwicklung, Industrie, Verstädterung). Der Schutz von Sommerquartieren ist eine der Hauptrichtungen des Kleinabendseglerschutzes. Das Anbringen von Fledermauskästen ist in den Gebieten, wo die Baumhöhlenanzahl ungenügend ist, sehr effektiv. Es ist auch sehr wichtig, die Hauptwanderstrecken des Kleinabendseglers zu bestimmen, welche sich über die gesamte Landesfläche erstrecken, und der Schutz von Rastplätzen oder vorübergehenden Aufenthaltsplätzen während der Wanderung.

R é s u m é

Situation présente, distribution et problèmes de la conservation de la Noctule de Leisler, *Nyctalus leisleri* (Kuhl, 1817), en Ukraine

La Noctule de Leisler se rencontre sporadiquement en Ukraine, mais pour la plupart elle se trouve en zones forestières et en zones forêt-steppe. Dans la zone steppe, cette espèce est observée seulement lors de la migration. Les routes de migration ainsi que les directions de migration ne sont explorées qu'insuffisamment. Il n'y a pas d'observations fiables touchant à l'hibernation de Noctules de Leisler dans ce pays. Les données estimées font constater une diminution du nombre de Noctules de Leisler pendant la deuxième moitié du 20ème siècle. Quel que soit, les estimations objectives (et neutres) de l'état numérique des Noctules de Leisler et des tendances dynamiques en Ukraine sont problématiques en raison du niveau insuffisant dans les recherches de cette espèce. La diminution de la population de Noctules de Leisler se laisse peut-être attribuer à la réduction du nombre de gîtes d'été et à la dégradation d'habitats (régression quantitative des creux d'arbre, des territoires de vieilles forêts, des anciennes espèces d'arbre, diminution des gîtes potentiels), aux changements des structures de paysage, aux changements des caractéristiques des habitats de chasse et aux changements économiques généraux de la région (développement économique, industrie, urbanisation). La conservation des gîtes d'été est le but principal dans la protection de la Noctule de Leisler. L'installation de boîtes

de chauves-souris, aux lieux où il y a un manque de creux d'arbre, est très efficace. De plus, il est très important de déterminer les routes de migration principales de la *Noctule de Leisler*, qui s'étendent sur tout le territoire du pays, et d'assurer la conservation d'aires de repos et de places de stationnement temporaire pendant la migration.

Introduction

Leisler's bat (*Nyctalus leisleri* (Kuhl, 1818)) belongs to a dendrophil bat species, which is less investigated in Ukraine than cave ones. The complete survey of the situation and the distribution of *N. leisleri* on the territory of Ukraine till the middle of the 20th century was given by V. ABELENTSEV, I. PIDOPLICHKO & B. POPOV (1956). The data about distribution and biology of this species in Ukraine in the second part of the 20th century is contained in the publications of YU. KROCHKO (1984, 1986), V. KRYZHANOVSKY & A. KORNEEV (1988), I. KOVALYOVA (1999) et al. The observations of this bat in some regions are known from the report of V. POKYN'CHEREDA (1993), V. BULAKHOV & P. CHEGORKA (1998), I. MERZLIKIN & YE. LEBID' (1998), Z. SELIUNINA (1998) et al.

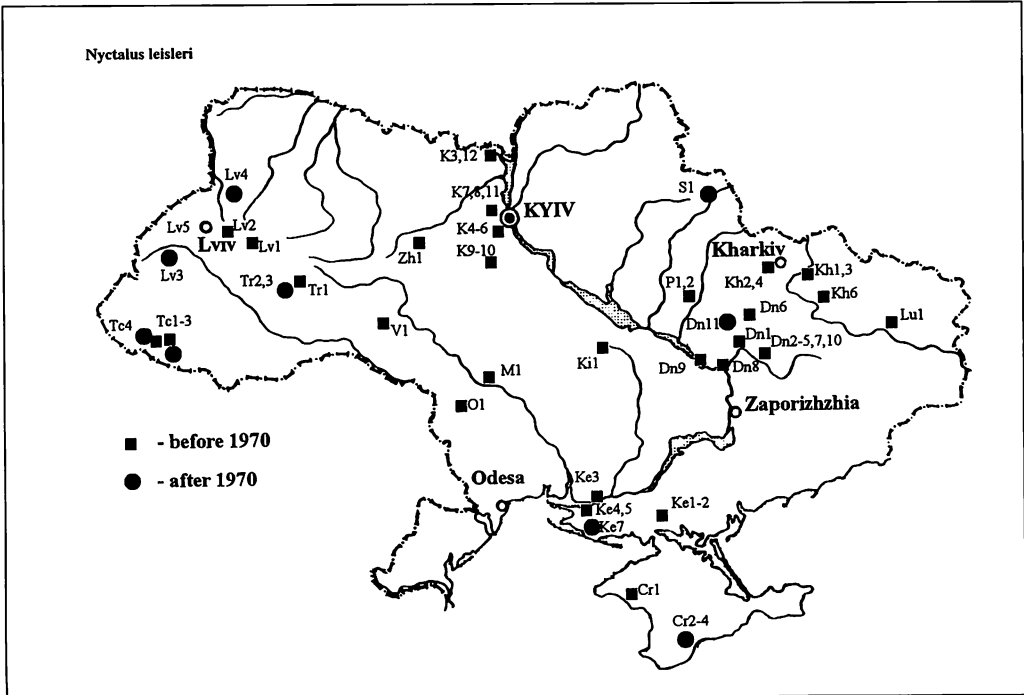
Geographical distribution (map 1; tab. 1)

The Leisler's bat is found on the whole territory of Ukraine, but the highest number is in the forest and forest-steppe zones. Closer to the South, in the steppe zone this bat is noted only during the migration.

The distribution of *N. leisleri* in Ukraine is tied to the leaf-bearing forests and parks. In the Carpathian mountains the species occurs in the foothills and lower forest zone (KROCHKO, 1986).

The migration routes, direction of migrations are investigated insufficiently. It is supposed that most of the Ukrainian Leisler's bat population wintered beyond the borders of the country.

Some Leisler's bats may stay for hibernation in Ukraine. However, there are no reliable observations, which confirm this supposition. Only some facts of early-spring and late-autumn display of *N. leisleri* may testify the possibility of its wintering in the south and east of Ukraine and Crimea (PANCHENKO 1973; BERESTENNIKOV 1977; DULITSKY 1978).



Map 1. Distribution of Leisler's bats in Ukraine.
Karte 1. Verbreitung des Kleinabendseglers in der Ukraine.
Carte 1. Distribution des Noctules de Leisler en Ukraine.

Tab. 1. Records of *Nyctalus leisleri* on the territory of Ukraine.

Tab. 1. Funde von Kleinabendseglern in der Ukraine.

Tab. 1. Trouvailles des Noctules de Leisler en Ukraine.

Code	Data	Geographic description	Remarks	References
Cr1	till 1956	Donuzlav vi 11., Chornomors'ke distr.	Near the Donuzlav lake	APP (1956)
Cr2	29.3.1976	Sadovy kordon, Crimea State Nature Reserve	1 M	DULITSKY (1978)
Cr3	25.5.1976	Bukovsky kordon, Crimea State Nature Reserve	2 MM	DULITSKY (1978)
Cr4	16.11.1976	Olen'kordon, Crimea State Nature Reserve	1 M	DULITSKY (1978)
Dn1	25.5.1928, 10.6.1928	Samarsky forest, Orlivschyna vill., Novomoskovs'k distr.	2 colonies, 42 FF	MILUTIN (1930)
Dn2	autumn 1931	Samarsky forest, Vasylivka vill., Novomoskovs'k distr.	in the pellets of <i>Tyto alba</i>	POPOV (1936)
Dn3	25.5.1939, 14.6.1940	Samarsky forest	tree forest	APP (1956)
Dn4	1.6.1939	Samarsky forest	15 FF, tree hollow	APP (1956)
Dn5	13.6.1939	Samarsky forest	9 FF, tree hollow	APP (1956)
Dn6	till 1956	Pereschepyne vill., Novomoskovs'k distr.		APP (1956)
Dn7	till 1956	Pavlograd distr.		APP (1956)
Dn8	26.4.1940	Dnipropetrovs'k-city area		APP (1956)
Dn9	6.5.1940	Fursyn-isl., Vasylikivka distr.		APP (1956)
Dn10	13.6.1940	Samarsky forest	3 FF, tree hollow	APP (1956)
Dn11	1996	Oril forestry, near Busivka vill., Mahdalynivka distr.		BULAKHOF, CHEHORKA (1996)
K1	2.5.1938	Kyiv-city area		APP (1956)
K2	17.5.1939	Golosiyeve, Kyiv-city area	1 F	NMNH
K3	29.6.1939	Starosilla vill., Chornobyl'distr.		AKKT (1970)
K4	18.6.1939	Goryste, Kyiv-city atea	Maternity colony	APP (1956)
K5	18.7.1940	Koncha-Zaspa, Kyiv-city atea	20 FF, tree hollow	APP (1956)
K6	22.6.1939	Goryste, Kyiv-city atea	1 M	NMNH
K7	18.7.1940	Puscha-Vodytsia, Kyiv-city atea		AKKT (1970)
K8	18.6.1940	Kyiv-city area		APP (1956)
K9	22.5.1950	Olexandria-park, Bila-Tserkva-town	1 M	NMNH
K10	1955	Olexandria-park, Bila-Tserkva-town		APP (1956)
K11	till 1956	Vyscha Dubechnia vill., Wyshgorod distr.		APP (1956)
K12	till 1956	Novoshepelychi vill., Chornobyl distr.		APP (1956)
Ke1	7.9.1928	Zapovidnyk „Askania-Nova“	1 F	POPOV (1936)
Ke2	8.9.1928	Zapovidnyk „Askania-Nova“	1 M	POPOV (1936)
Ke3	2.7.1930	Kherson city		APP (1956)
Ke4	2.9.1936	Gola Prystan'town	1 M	NMNH
Ke5	21.9.1936	Gola Prystan'town	2 FF, 3 MM	NMNH

Ke6	18.6.1939	Chornomorsky Biosphere Reserve	2 FF	NMNH
Ke7	1996	Chornomorsky Biosphere Reserve	Migration period	SELIUNINA (1998)
Kh1	7.1927	khutir Korobov, Zmiiv distr.	1 M	NMNH
Kh2	6.6.1936 15.6.1938 26.8.1938	Babai vill., Kharkiv distr.	Maternity colony	APP (1956)
Kh3	13.8.1938	Zmiiv distr.	2 FF	NMNH
Kh4	26.8.1938	Kharkiv-city	1 M	NMNH
Kh5	till 1956	Balakliya distr.		APP (1956)
Ki1	8.6.1953	Chorny forest, Snamianka distr.		ZMKU
Lu1	7.8.1927	Rubezhne vill. Area	1 M	NMNH
Lv1	till 1956	Peniaky vill., Brody distr.		LNPM
Lv2	till 1960	Slochiv-town		APP (1956)
Lv3	19.6.1998	Kornalovychi vill., Sambir distr.	Oak forest	our data
Lv4	14.8.2000	Khlivchany vill. Sokal'distr.	1 M	our data
Lv5	2.9.2000	Lviv-city area	1 F	our data
M1	till 1956	Perwomaisk-town		APP (1956)
O1	till 1956	Ananiiv distr.		APP (1956)
P1	till 1956	Poltava-city area		APP (1956)
P2	8.6.1967	Parasotsky forest	3 MM	NMNH
S1	6.1971	near Vakalivschyna vill., Sumy distr.	Old oak forest	MERSLIKIN & LEBED' (1998)
Tr1	till 1956	Strusy vill., Terebovla distr.		APP (1956)
Tr2	13.8.1999	Gorodnytske forestry, Medobory Nature Reserve	40 ind., tree hollow	TYSHCHENKO STOROZHUK (2000)
Tr3	16.8.1999	Gorodnytske forestry Medobory Nature Reserve	4 MM, 7 FF,	TYSHCHENKO STOROZHUK (2000)
Tc1	1963	Ugli vill., Tjachiv distr.		KROCHKO (1994)
Tc2	20.5.1965	Mala Ugolka vill., Tjachiv distr.	Carpathians biosphere reserve	ABELENTSEV (1967)
Tc3	1978	Ugolka massiv, Tjachiv distr.	Carpathians biosphere reserve	POKYNCHEREDA (1993)
Tc4	1980	Dragove vill., Khust distr.		KROCHKO (1994)
V1	8.10.1926	Khrinivka vill., Illintsi distr.	In pellets of <i>Strix aluco</i>	POPOV (1936)
Zh1	till 1956	Andrushiv distr.		APP (1956)

Cr – Crimea; Dn – Dnipropetrovs'k region; K – Kyiv region; Ke – Kherson region; Kh – Kharkiv region; Kr – Kirovograd region; Lu – Lugans'k region; Lv – Lviv region; M – Mykolaiv region; O – Odesa region; P – Poltava region; S – Sumy region; Tr – Ternopil' region; Tc – Transcarpathians region; V – Vinnytsia region; Zh – Zhytomyr region.

APP (1956) – ABELENTSEV, PIDOPLYCHKO, POPOV (1956)

AKKT (1970) – ABELENTSEV, KOLIUSHEV, KROCHKO, TATRYNOW (1970)

NMNH – National Museum of Natural History

ZMKU – Zoological Museum of Kyiv University

LNPM – State Natural History Museum in Lviv

Literature cites the retrap of a ringed female of *N. leisleri* in the central part of Ukraine. It may inform about the direction and terms of migration of this species. The specimen, ringed in the middle of July, was found at the beginning of May 100 km to the west from ringing place (ABELENTSEV et al. 1956). This bat was caught during the return to the summer place.

The migration routes of *N. leisleri* from the territory of west and central regions of European parts of Russia could be across the territory of Ukraine. The retrap in Turkey of Leisler's bat which was ringed in Voronezh reserve (Russia) may testify it (PANIUTIN, unpubl.). Probable migration route of this specimen was across the east part of Ukraine.

Assessment of situation in the past and today

Leisler's bat appears sporadically in Ukraine and it is noted here as a rare or very rare migrate species now. However, this species was sufficiently numerous till the middle of the 20th century in the forest zone of Ukraine (ABELENTSEV et al. 1956). Since then the population number has decreased considerably and it is in the limits of a several hundred animals (KRYZHANOVSKY & KORNEEV 1988). *N. leisleri* belongs to the bat species, the number of which has decreased in Ukraine and this process still continue (KRYZHANOVSKY & KORNEEV 1988; BULAKHÓV & CHEGORKA 1998).

Protection status of *N. leisleri* in Ukraine

On the estimate of IUCN (1996) Leisler's bat have a status LR (nt). This species entered the Red Book of Ukraine (IIIrd category: rare species). The decreasing of Leisler's bat is very considerable in Ukraine.

Factors of danger

The decreasing of Leisler's bat population may be caused by reducing of summer roosts number and the degradation of habitats.

The population decrease may be connected with the changes of landscape structure. It is the cause of decreasing number of potential roosts,

the changes of qualitative characteristics of foraging habitats and general economical changes of the territory (economical development, industry, urbanisation) too. The large-scale using of herbicides in the economy could also have influence on the population number level. Since *N. leisleri* is a dendrophilic species, its number decreasing is connected with quantitative regression of hollow trees, old forest area, aged wood structure changes.

There is also a loss of bat specimens during the migrations and may be in the places of hibernation (KROCHKO 1994; KOVALYOVA 1999).

Conservation measures and recommendations

The protection of summer roosts is one of the main directions in the Leisler's bat conservation. First of all it is concerned with the area of old hollow trees which are the main summer roosts for Leisler's bat colonies. The putting up of the bat box is very effective in the places where the number of hollow trees is insufficient. They are settled by bats including Leisler's bat. It is very important to determine the main Leisler's bat migration routes which are across the territory of country and the conservation of the rest places or temporary stop-over-places during the migrations as well the determination of danger which exists for bats during migration.

Increasing of the public awareness level about the bats, the formation of a positive attitude to those animals, namely in the regions with the bat migration routes, are the important tasks also for NGO's.

The stopping of the pesticides using have a positive influence for the fauna in general. However, the influence on the stopping of the pesticides using on the status of Leisler's bat has been investigated insufficiently.

Conclusions

The objective (impartial) assessment of Leisler's bat number state and dynamic trends in Ukraine is difficult because of the insufficient level of investigations of this species.

The estimated data indicate the decreasing of Leisler's bat number in the country during the second part of the 20th century. Then the

measures for the stopping of bat number reduction and stabilisation of this process are necessary. The questions of seasonal migrations (routes, directions, phenology, intensity, etc.) are also needed.

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