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**DISTRIBUTION OF THE SWALLOW BUG  
(*OECIACUS HIRUNDINIS*) IN SLOVENIA,  
WITH AN UNUSUAL FINDING IN A FAT DORMOUSE  
(*MYOXUS GLIS*) NEST**

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**Abstract** - After the first accidental findings of *Oeciacus hirundinis* in Slovenia, new data of occurrence are obtained during the systematic collection of ectoparasites from the nests of *Delichon urbica* and *Myoxus glis*. We consider that *Oeciacus hirundinis* is widespread in *Delichon urbica* nests in Slovenia. Three male specimens of *Oeciacus hirundinis* were also found in the nests of *Myoxus glis*. This is the first finding in any mammalian nest.

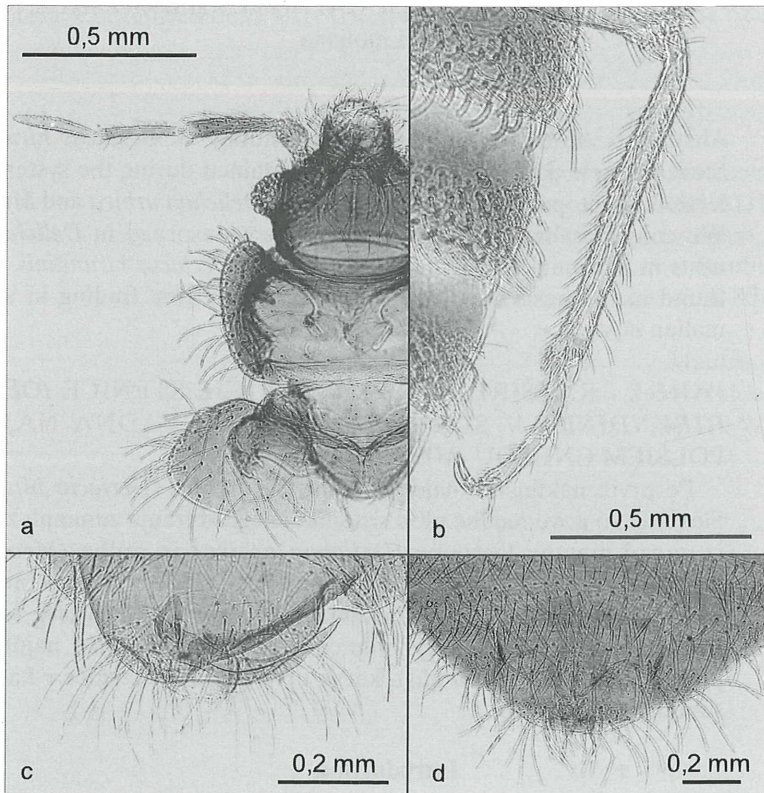
**Izveček** - RAZŠIRJENOST LASTOVIČJE STENICE (*OECIACUS HIRUNDINIS*) V SLOVENIJI IN NENAVADNA NAJDBA V POLŠJEM GNEZDU (*MYOXUS GLIS*)

Po prvih naključnih najdbah lastovičje stenice (*Oeciacus hirundinis*) v Sloveniji so nove najdbe plod sistematičnega zbiranja zunanjih zajedalcev iz gnezd mestne lastovke (*Delichon urbica*) in polha (*Myoxus glis*). Lastovičja stenica (*Oeciacus hirundinis*) je v Sloveniji verjetno splošno razširjena v gnezdih mestne lastovke (*Delichon urbica*). Poleg tega so bili trije odrasli samci lastovičje stenice (*Oeciacus hirundinis*) najdeni tudi v polšjem gnezdu (*Myoxus glis*), kar je prva najdba te stenice v kateremkoli sesalčjem gnezdu.

**Introduction**

Different authors cite 20 species of avian hosts for *Oeciacus hirundinis* (Jenyns, 1839): *Delichon urbica* (JACOBSON 1940, STICHEL 1955-1962, USINGER 1966, PÉRICART

1972), *Hirundo rustica* (STICHEL 1955-1962, USINGER 1966, PÉRICART 1972), *Riparia riparia* (STICHEL 1955-1962, USINGER 1966, PÉRICART 1972), *Hirundo daurica* (STICHEL 1955-1962, USINGER 1966), *Apus apus* (STICHEL 1955-1962, USINGER 1966, PÉRICART 1972), *Apus pacificus* (STICHEL 1955-1962, PÉRICART 1972), *Passer domesticus* (STICHEL 1955-1962, USINGER 1966, PÉRICART 1972), *Petronia petronia* (STICHEL 1955-1962, USINGER 1966), *Oenanthe oenanthe* (STICHEL 1955-1962, USINGER 1966), *Sturnus vulgaris* (USINGER 1966, PÉRICART 1972), *Dendrocopus major* (USINGER 1966, PÉRICART 1972), *Genicus* (PÉRICART 1972), *Alauda arvensis* (USINGER 1966, PÉRICART 1972), *Melanocorypha mongolica* (USINGER 1966, PÉRICART 1972), *Anthus campestris* (USINGER 1966, PÉRICART 1972), *Anthus novaeseelandie richardi* (USINGER 1966), *Calandrella rufescens* (USINGER 1966, PÉRICART 1972), *Luscinia cyane* (USINGER 1966), *Motacilla flava* (USINGER 1966, PÉRICART 1972) and *Motacilla alba* (USINGER 1966, PÉRICART 1972). STICHEL (1955-1962) cites an accidental finding on *Homo sapiens* as the only mammalian host. The only previous findings of *Oeciacus hirundinis* in Slovenia are from human apartments (GOGALA & GOGALA 1986, GOGALA unpublished data).



**Fig. 1:** *Oeciacus hirundinis* (Jenyns, 1839), a - head and thorax, b - lower part of the hind leg, c - copulatory organ of a male, d - posterior part of female abdomen.

## Materials and Methods

Nests of *Delichon urbica* were collected in two localities in Kranj (Planina and Savska Loka) and at Bled (Fig. 2). In the Bled area (altitude 510 m, UTM VM33) nests of *Delichon urbica* were placed under the jutting roof of the Hotel Park ground floor. The nests in Kranj in the Planina area (altitude 390 m, UTM VM52) were located above the 13th floor of an apartment house and in the Savska Loka area (altitude 360 m, UTM VM42) under the concrete roof on the 5th floor of the factory Iskra Števeci. Nests of *Myoxus glis* were collected from boxes designed for birds and bats that were inhabited by dormice. They were placed in a permanent study area (TRILAR 1991) in the Dinaric Beech-Fir forest (*Abieti-Fagetum dinaricum*) near Sviščaki on Snežnik Mountain (altitude 1250 m, UTM VL54, Fig. 2). The contents of the nests were transported from the field in airtight plastic bags to prevent the escape of any arthropods. They were placed over Berlese-Tullgren funnels (SOUTHWOOD 1978) for 5 days for the collection of the arthropods. The material is kept at the Slovene Museum of Natural History in Ljubljana.

## Results

### Findings of *Oeciacus hirundinis* in Slovenia:

		3 specimens	SLO: MARIBOR; UTM:WM55; 275 m; before 1970; (GOGALA & GOGALA 1986).
3 M			SLO: Snežnik, SVIŠČAKI; UTM:VL54; 1250 m; 27.9.1993; from the nest of <i>Myoxus glis</i> ; T.Trilar leg.
9 M	31 F	24 larvae	SLO: BLED; UTM:VM33; 510 m; 15.4.1992; from 8 nests of <i>Delichon urbica</i> ; T.Trilar leg.
99 M	64 F	149 larvae	SLO: BLED; UTM:VM33; 510 m; 21.11.1992; from 4 nests of <i>Delichon urbica</i> ; T.Trilar leg.
401 M	198 F	406 larvae	SLO: Kranj, PLANINA; UTM:VM52; 390 m; 26.3.1993; from 23 nests of <i>Delichon urbica</i> ; T.Trilar leg.
171 M	188 F	160 larvae	SLO: KRANJ, Savska loka; UTM:VM42; 360 m; 8.4.1993; from 27 nests of <i>Delichon urbica</i> ; T.Trilar leg.
10 M	5 F	94 larvae	SLO: BLED; UTM:VM33; 510 m; 9.4.1993; from 3 nests of <i>Delichon urbica</i> ; T.Trilar leg.
373 M	551 F	5303 larvae	SLO: KRANJ, Savska loka; UTM:VM42; 360 m; 22.6.1993; from 30 nests of <i>Delichon urbica</i> ; T.Trilar leg.
526 M	547 F	1572 larvae	SLO: KRANJ, Savska loka; UTM:VM42; 360 m; 6.9.1993; from 35 nests of <i>Delichon urbica</i> ; T.Trilar leg.

181 M    143 F    52 larvae    SLO: KRANJ, Savska loka; UTM:VM42; 360 m; 23.5.1994; from 4 nests of *Delichon urbica*; T.Trilar leg.  
 1 specimen    SLO: Ljubljana, ŠIŠKA; UTM:VM60; 300 m; 19.6.1994; creeping on the window pane; S.Brelih leg.

The first and last mentioned finding of *Oeciacus hirundinis* are accidental, the first in a human flat (GOGALA & GOGALA 1986), the last creeping on the window a few meters below *Delichon urbica* nests at the top of an apartment house. Other eight findings are result of examination of 145 nests of *Delichon urbica* and 60 nests of *Myoxus glis*.

**Table 1:** Findings of *Oeciacus hirundinis* in the nests of *Delichon urbica*.

No. = Number of examined nests

1.st.-5.st. = 1. - 5. larval stage

M = male, F = female

Locality	Date	No.	1.st.	2.st.	3.st.	4.st.	5.st.	M	F	Σ
Kranj, PLANINA	26.3.1993	24	0	0	73	175	158	401	198	1005
Kranj, SAVSKA LOKA	8.4.1993	31	0	0	75	85	0	171	188	519
BLED	9.4.1993	4	0	0	52	31	11	10	5	109
BLED	15.4.1992	10	0	0	7	9	8	9	31	64
Kranj, SAVSKA LOKA	23.5.1994	4	1	0	2	20	29	181	143	376
Kranj, SAVSKA LOKA	22.6.1993	33	1742	1471	1055	645	390	374	551	6228
Kranj, SAVSKA LOKA	6.9.1993	35	155	520	436	287	174	526	547	2645
BLED	21.11.1992	4	0	0	32	47	70	99	64	312
Together		145	1898	1991	1732	1299	840	1771	1727	11258

## Discussion

*Oeciacus hirundinis* was previously found in Slovenia a few times in many localities in human flats (GOGALA unpublished data), but the only documented time from Maribor (GOGALA & GOGALA 1986). The new data of occurrence were obtained during the systematic collection of ectoparasites from the nests of *Delichon urbica* and *Myoxus glis*. Altogether 145 nests of *Delichon urbica* were examined (Table 1). In 89 *Delichon urbica* was nesting in a current season, all the other were inactive. *Oeciacus hirundinis* was found in all but two of the active nests. There were 7541 larvae and 3129 adults of *Oeciacus hirundinis*, which is on average 119.9 specimens per active nest. 49.3% of the adults were males and 50.7% females, not statistically significant difference. The biggest registered number in one *Delichon urbica* nest was 1723 larvae, 99 males and 57 females of *Oeciacus hirundinis* in Savska Loka area in July 1993. 211 larvae and 315 adults of *Oeciacus hirundinis* were also present in 45 inactive nests, but in 11 inactive nests they were absent. We conclude that *Oeciacus hirundinis* is probably widespread in *Delichon urbica* nests in Slovenia.

We also examined 60 nests of *Myoxus glis* and in one of them found three male specimens of *Oeciacus hirundinis*. In examined nests of *Myoxus glis* we once found the *Ceratophyllus rusticus* flea and twice *Ceratophyllus hirundinis* (TRILAR 1995). For both flea species *Delichon urbica* is the main host and they are ecologically classified into the group of swallow ectoparasites (ROSICKY 1950, ROSICKY 1957, JURIK 1975, JURIK 1976, JURIK 1978). We have not been able to find them in the literature on *Myoxus glis* nests and this is the first finding in any mammalian nest of *Oeciacus hirundinis*.

In the vast extent of the Dinaric Beech-Fir forest around Sviščaki the transmission of *Oeciacus hirundinis* and both mentioned flea species to the *Myoxus glis* nests is impossible without the intermediate host. This intermediary helps ectoparasites to cross the distance between the swallows' nesting places more than 10km away and nest boxes inhabited by *Myoxus glis*. This intermediate host was most probably *Sitta europaea* which nested in the same area during the period of this study.

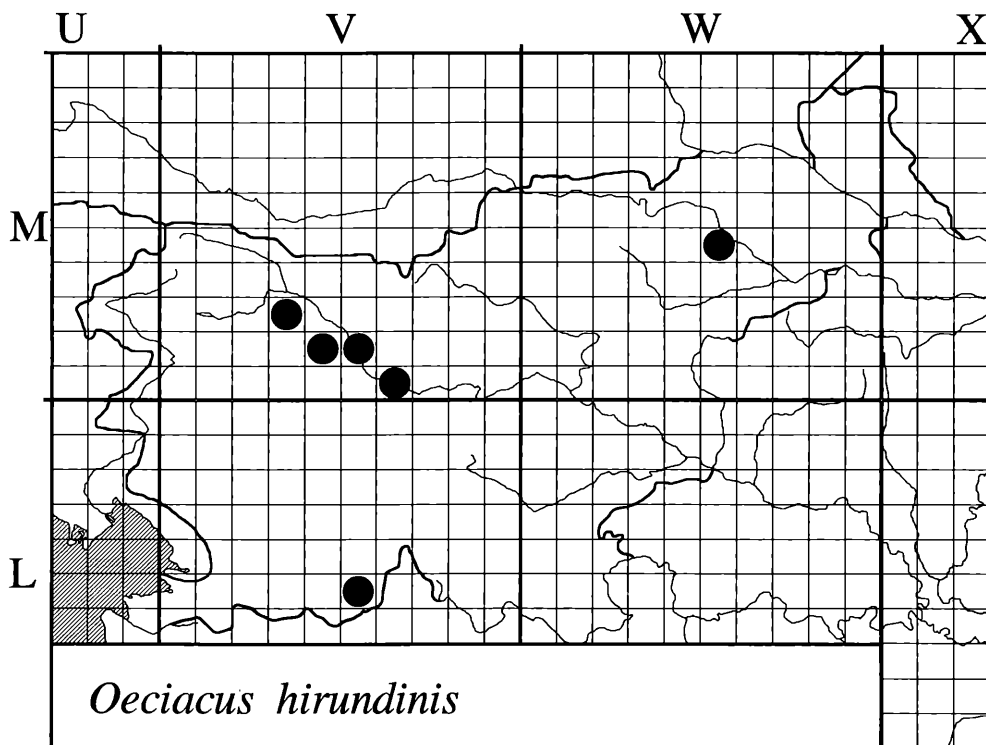


Fig. 2: Known distribution of *Oeciacus hirundinis* in Slovenia.

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