



Short Note

Long distance migration of female Leisler's bat (*Nyctalus leisleri*) from Italy to Poland

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Abstract

The routes followed by migratory bat populations occurring in Italy are practically unknown. We herewith report on the capture of a female Leiskler's bat *Nyctalus leisleri* occurred in Poland, Wielkopolska province (Greater Poland), district Ostrzeszów, in a forest near the village of Jesiona. The specimen, caught on 5 August 2012, had been previously (23 September 2010) banded in Italy in the Nature State Reserve of Pian degli Ontani (Cutigliano, Pistoia Province, Italy, 10° 41' 33" E, 44° 06' 27" N; ring code WWF-ITALY C0524). The minimum straight distance between the two sites is ca. 960 km. This record is the first that proves the existence of migration in Italian populations of *N. leisleri* and shows that a long NE-SW migration route – one of the longest recorded in Europe by *N. leisleri* – is followed. The observation remarks once again the importance of a large-scale, trans-national planning of bat conservation.

Leisler's bat *Nyctalus leisleri* (Chiroptera: Vespertilionidae) is a well-known migrant bat species largely moving across the European continent (Hutterer et al., 2005). Less than 1% of the ca. 5000 individuals banded in Europe have led to long-distance recaptures (Hutterer et al., 2005). The longest movement recorded for Europe (1567 km) was made by a female banded in Germany and recaptured in Spain (Ohlendorf et al., 2000).

In Italy, a long-term monitoring of this species is carried out since 1994 (Vergari and Dondini, 2011) in an 80-100 years old beech forest in the Pian degli Ontani Nature Reserve (Pistoia, Tuscany) (Dondini and Vergari, 2009). Overall, 90 bat boxes (74 "2F

Universal" and 16 "2FN Special" bat boxes, Schwelger, Germany) were located in six circular areas (radius = ca. 50 m) at this site, each including 14-18 boxes arranged in pairs. Each pair was hung to a tree at ca. 5 m and randomly oriented. The six areas were 200-300 m apart and located at an altitude between 1200 and 1400 m a.s.l. Bat boxes were surveyed every two weeks in summer (June - September) and monthly during the rest of the year. Bats found inside the boxes are sexed, aged and weighed (Dondini and Vergari, 2009). From May 1996, all bats have been banded (rings produced by Lambournes Ltd. snf coded WWF Italy C####; ring size: 4.2 mm; see Russo et al. 2007). The Italian site is used by *N. leisleri* for mating: bats reach the place in late August and leave it in mid-October (Dondini and Vergari, 2009).

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Figure 1 – Documented movement of female C0524 from Italy to Poland.

On 23 September 2010, an adult female with a forearm length of 43.1 mm and a body mass of 16.1 g was banded (ring code WWF Italy C0524). This bat was found in a bat box along with another female (C0522) and a male (C0811). The same female was recaptured on 29 September 2011 in a harem comprising a male and another seven females. The recapture took place on 5 August 2012 in Poland, Wielkopolska province (Greater Poland), district Ostrzeszów, in the forest near the village of Jesiona (17° 46' 44" E, 51° 27' 41" N). The bat – at that time lactating – was roosting in a type Issel wooden bat box and was part of a nursery group of 32 individuals (9 adult females, 12 young females, 10 young males, one individual escaped capture so it was not sexed or aged). The bat box was hung to a *Pinus sylvestris* tree in an old (ca. 80 years old) mixed forest stand including *Betula verrucosa* and *Picea abies*.

The minimum straight distance between the two capture sites is ca. 960 km and is oriented along a SW/NE direction (Fig. 1).

This is the first record of a *N. leisleri* long-distance movement for the Italian population as well as one of longest ever documented for this species (Bogdanowicz and Ruprecht, 2004; Hutterer et al., 2005; Steffens et al., 2004). The longest migration movement recor-

ded for Polish *N. leisleri* was ca. 418 km (from Poland to Slovakia) (Krzanowski, 1960).

Geographical data on the migration of Italian bat populations are almost non-existent but they are most needed for the correct management of this species. Our observation remarks the importance of a constant international collaboration to monitor migration and develop appropriate conservation plans which would clearly prove ineffective if only based on a local scale (see Vergari and Dondini 2011). 

References

Bogdanowicz W., Ruprecht A.L., 2004. *Nyctalus leisleri* (Kuhl, 1817) – Kleinabendsegler. In: Krapp F. (Ed.). Handbuch der Säugetiere Europas. Band 4/II: Fledertiere (Chiroptera) II. Wiebelsheim. 717-756.

Dondini G., Vergari S., 2009. Harem size and male mating tactics in *Nyctalus leisleri* (Kuhl, 1817) (Chiroptera, Vespertilionidae). *Hystrix* 20(2): 147–154.

Hutterer R., Ivanova T., Meyer-Cords C., Rodrigues L., 2005. Bat migration in Europe. A review of banding data and literature. Federal Agency of Nature Conservation, Bonn.

Krzanowski A., 1960. Investigations of flights of Polish bats, mainly *Myotis myotis* (Borkhausen, 1797). *Acta Theriol.* 4: 87–108.

Ohlendorf B., Hecht B., Stassburg D., Agirre-Mendi P.T., 2000. Fernfund eines Kleinabendseglers (*Nyctalus leisleri*) in Spanien. *Nyctalus* 7: 239–242. [in German]

Russo D., Agnelli P., Genovesi P., Preatoni D., Martinoli A., 2007. Documento tecnico sull'inanellamento dei Chiroteri in Italia. Ministero dell'Ambiente e della Tutela del Territorio e del Mare, Istituto Nazionale Fauna Selvatica e Gruppo Italiano Ricerca Chiroteri.

Steffens R., Zöphel U., Brockmann D., 2004. 40 Jahren Fledermausmarkierungszentrale Dresden, methodische Hinweise und Ergebnisübersicht. Sächsisches Landesamt für Umwelt und Geologie, Dresden. [in German]

Vergari S., Dondini G., 2011. Long-term monitoring of *Nyctalus leisleri* at an Italian mating site. *Hystrix* 22(1): 93–98.

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