



Monitoring of bats in Luxembourg

2014 to 2017

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Conference on Monitoring biodiversity in Luxembourg: what is left to be done?

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In collaboration with:



NP Müllerthal, NP Obersauer, SBNP Our, SIAS, SICONA Ouest, SICONA Centre, Gessner Landschaftsökologie, Groupe Spéléologique Luxembourgeois, Institut für Tierökologie und Naturbildung, ProChirop, Jo André, Jacques Pir

Legal conservation of the bat fauna



Fauna Flora Habitat Directive (HD), Art. 12

Annexe IV: All **45 bat species** occurring in the EU are protected.

- The deliberate disturbance of species during breeding, rearing, hibernation and migration is prohibited, as well as the deterioration or destruction of their breeding sites or resting places.

Annexe II: 14 bat species

- The designation of core sites for their protection (Special Areas for Conservation) and special management measures aiming at conserving these areas for the species are required.

HD, Art. 6:

Member States should designate **Natura 2000 sites** for selected species and habitat types listed in the two directives.

They must undertake positive management measures to ensure their populations are maintained and restored to a ***favourable conservation status***.

Art. 11 HD:

Monitoring of conservation status for all habitats (as listed in Annex I) and species (as listed in Annex II, IV and V) of Community interest. Data need to be collected both in and outside the Natura 2000 network to achieve a full appreciation of conservation status.



Art. 17 HD:

requires Member States to report every six years about the progress made with the implementation of the Habitats Directive.

In Luxembourg: National Law for Nature Protection

Art. 20 and 28: All 21 bat species occurring in Luxembourg are protected.

Art. 17: Protection of the 6 Annex II species.

Art. 12: Protection of the habitats and roosting sites of Annex II species listed in the standard data forms of the Natura 2000 site

Bat species of Luxembourg their protection status and actual national conservation status

Deutscher Name	Franz. Name	Lat. Name	FFH- Anhang IV	FFH- Anhang II	Nat. EZu 2013
Große Hufeisennase	Grand rhinolophe	<i>Rhinolophus ferrumequinum</i>	ja	ja	U1
Kleine Hufeisennase	Petit rhinolophe	<i>Rhinolophus hipposideros</i>	ja	ja	U2
Mopsfledermaus	Barbastelle	<i>Barbastella barbastellus</i>	ja	ja	U2
Großes Mausohr	Grand murin	<i>Myotis myotis</i>	ja	ja	U1
Bechsteinfledermaus	Murin de Bechstein	<i>Myotis bechsteinii</i>	ja	ja	U1
Wimperfledermaus	Murin à oreilles échanrées	<i>Myotis emarginatus</i>	ja	ja	U1
Teichfledermaus	Murin de Marais	<i>Myotis dasycneme</i>	ja	ja	XX
Wasserfledermaus	Murin de Daubenton	<i>Myotis daubentonii</i>	ja	nein	FV
Fransenfledermaus	Murin de Natterer	<i>Myotis nattereri</i>	ja	nein	U1
Kleine Bartfledermaus	Murin à moustaches	<i>Myotis mystacinus</i>	ja	nein	XX
Große Bartfledermaus	Murin de Brandt	<i>Myotis brandtii</i>	ja	nein	XX
Nymphenfledermaus	Murin d'Alcathoe	<i>Myotis alcathoe</i>	ja	nein	XX
Nordfledermaus	Sérotine de Nilsson	<i>Eptesicus nilssonii</i>	ja	nein	U1
Breitflügel fledermaus	Sérotine commune	<i>Eptesicus serotinus</i>	ja	nein	U1
Zweifarb fledermaus	Sérotine bicolore	<i>Vespertilio murinus</i>	ja	nein	XX
Graues Langohr	Oreillard gris	<i>Plecotus austriacus</i>	ja	nein	U1
Braunes Langohr	Oreillard roux	<i>Plecotus auritus</i>	ja	nein	U1
Großer Abendsegler	Noctule commune	<i>Nyctalus noctula</i>	ja	nein	U2
Kleiner Abendsegler	Noctule de Leisler	<i>Nyctalus leisleri</i>	ja	nein	U1
Rauhautfledermaus	Pipistrelle de Nathusius	<i>Pipistrellus nathusii</i>	ja	nein	XX
Zwergfledermaus	Pipistrelle commune	<i>Pipistrellus pipistrellus</i>	ja	nein	FV

Results of the reporting 2013 under Art. 17 of the HD

U1 = inadequate

U2 = bad

FV = favourable

XX = unknown

Surveillance methods

1. Roost counts:

1.1. Maternity colonies

Annexe II species:

Myotis myotis, *M. emarginatus*, *Rhinolophus ferrumequinum*:

- all known colonies should be counted at least once per year before the young become volant to determine the no. of adult females (adaption of counting dates according to yearly conditions).
If possible: 2. count approx. 4-5 weeks after the births to determine the no. of offspring

Myotis bechsteinii, *Barbastella barbastellus*:

- mist-netting > radiotracking of reproductive female > count of colony.

Two colonies per year > 12 colonies during the reporting period

Annexe IV species:

Eptesicus serotinus, *Plecotus auritus*, *P. austriacus* :

- One count at emergence or within the roost every two years = presence recording

1.2. Winter roosts

Two winter roosts are checked per year > 12 roosts within the reporting period

2. Swarming sites

Two sites are checked per year > 12 sites within the reporting period

3. Completion of standard data forms

Survey of selected Natura 2000 sites by mist-netting

1. Survey of maternity colonies

1.1. Survey of Annexe II species

Rhinolophus ferrumequinum: yearly count of the colony

Method: emergence count before young are volant

Location	Community	2014	2015	2016	2017
Bech-Kleinmacher	Wellenstein	168	179	177	196



Location	Community	2014	2015	2016	2017
Bech-Kleinmacher	Wellenstein	680	856	942	1096
Emerange	Mondorf-les-Bains	?	?	?	?
Rollingergrund	Luxemburg		40-45	36	
Lintgen *	Lintgen	50	20	65	
Bissen	Bissen		60-80	35	
Ettelbrück	Ettelbrück			220	
Moestroff	Bettendorf			60	
Rosport	Rosport			7	
Marienthal	Tuntange		64	41	
Platen - Fam. Trierweiler	Preizerdaul	0	0	0	
Platen - Fam. Nepper-Bettendorf	Preizerdaul		30	176	
Platen - Fam. Maréchal	Preizerdaul		70	0	
Platen - Fr. Englaro	Preizerdaul		6	0	
Ospern	Redange		10	4	
Colpach-Bas	Eil		50-60	68 Ca.80	

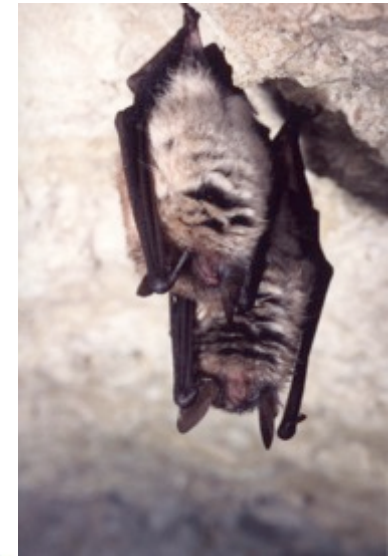
* Colony declined before 2013 from ca. 200 bats

Myotis emarginatus:

yearly count of the colonies

Method: emergence count before young are volant or count within the roost.

Green = stable population size
Red = decline or roost deserted



Myotis myotis: yearly count of the colonies

Method: 1. emergence count or count within the roost during the time of birth;
2. count when young become volant to determine the no.of offspring

Colonies absent in: Schieren, Colpach-Bas, Bourglinster, Bettendorf, Septfontaines

Colonies decreased in: Fischbach, Larochette, Mersch

New colony found in: Dondelange

Increase in Numbers: Bastendorf



Myotis myotis:



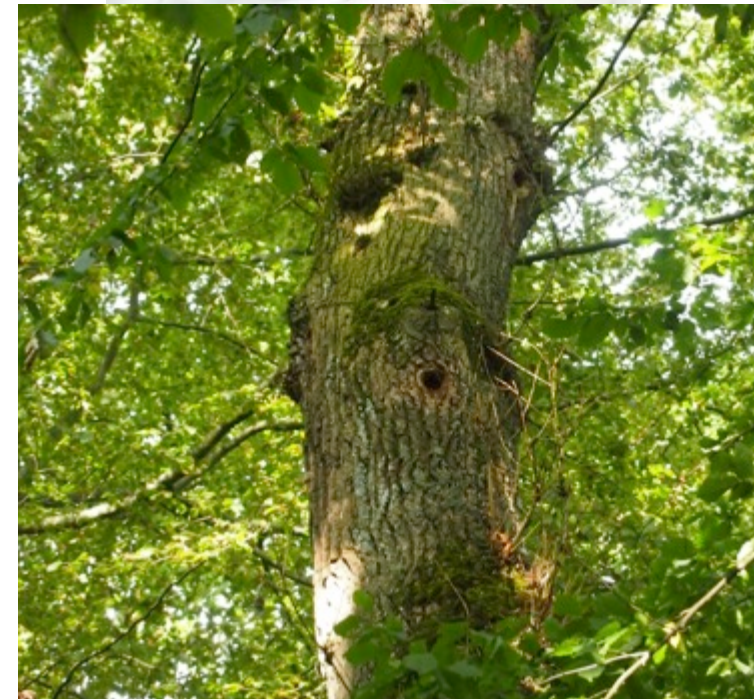
Green = stable population size
Red = decline or roost deserted

Location	Community	2013	2014	2015	2016	2017
Clervaux	Clervaux	1. count: 78 2. count: 148	1. count: 82 2. count: 101	1. count: 123 2. count: 130	1. count: 70 2. count: 127	1. count: 114 2. count: 165
Noertrange	Winseler	1. count: 21 2. count: 75	1. count: 34 2. count: 23	1. count: 61 2. count: 94	1. count: 79 2. count: 96	1. count: 89 2. count: 117
Bastendorf	Tandel		600 (ad+juv)	colonie not visible	1. count: > 300 2. count: > 600	1. count: ca. 560 2. count: ca. 450
Brandenbourg	Tandel			1. count: 15 2. count: > 20	1. Count 30 (ad+juv) 2. count: 18	1. count: 12 2. count: 33
Reisdorf	Reisdorf				60	1. count: 77 (ad+juv) 2. count: 60 (ad+juv)
Rosport Schule	Rosport			?	? (> 30)	20
Echternach, Hotel	Echternach	4	2	> 35	> 35	10
Weilerbach	Echternach			120	164	
Fischbach	Fischbach	14	15	15	1	12
Meysembourg	Larochette	6		63		13
Larochette	Larochette	15	20	0	1	1
Mersch	Mersch	1. count: 42 2. count: 130	1. count: 66	100	1. count: 39 2. count: 15	In roost ca. 30
Ansemburg	Tuntange			1. count: 230-280 2. count: 492	1. count: 296 2. count: 400	1. count: 300 2. Count: 272
Koerich	Koerich	1. count: 131		1. count: 125 2. count: 397	1. count: 330 2. count: 270	1. count: 380 2. count: 331
Dondelange	Kehlen			2. count: 18	2. count: 13	1. count: 23 2. count: 7
Oberpallen	Oberpallen/ Arlon (B)			50		

Myotis bechsteinii

each year 2 sites are checked: search of colonies by mist-netting, radio-tracking and subsequent check of tree roosts

Location	Community	2013	2014	2015	2016	2017
Bommelboesch	Käerjeng			60 (ad+juv)	?	1. count: 27 2. count: 25
Enneschte Boesch	Bertrange	19				
Friemholz	Echternach	14			29	
Warschent	Ernster		0			
Briedemesser Boesch 1	Stadtbredimus		53			
Briedemesser Boesch 2			67			
Bois de Herborn	Herborn			0		
Bois de Berbourg	Berbourg			17		
Seitert	Medernach				0	
Houwald	Grevenmacher					Mind. 21
Betebuerger- boesch	Bettemburg					Max. 23



1.1. Survey of Annexe IV species

Eptesicus serotinus:

presence control



Location	Community	2014	2015	2016	2017
Aspelt	Frisange	2		3	1. count: 26 2. count: 12
Schieren	Schieren		7	41	32
Esch/Sauer	Esch/Sauer			present	
Weiler-la-Tour	Weiler-la-Tour	2013: 12	6		
Bourglinster	Junglinster	10			
Kehlen	Kehlen		11		
Mamer	Mamer		10		
Ospem	Redange		20		
Steinsel	Steinsel		> 5		
Oberfeulen	Feulen		20		
Septfontaines	Septfontaines		1-4		

Plecotus auritus: presence control

Location	Community	2013	2014	2015	2016
Moutfort	Contern	4		4	
Contern	Contern		5		
Koerich	Koerich			0	



Location	Community	2014	2015	2016	2017
Trintange	Trintange		10	> 10	10
Bettel	Tandel		1		25 (ad+juv)
Moestroff	Bettendorf	0			1
Bech	Bech	10	0		
Hemstal	Bech		38		
Osweiler	Rosport		28		
Brandenbourg	Tandel	15 (ad+juv)		1. count: 5 2. count: 30	6
Mondorf	Mondorf			5	2
Betzdorf	Betzdorf	11			
Olingen	Betzdorf	16			
Medingen	Contern	12			
Colmar-Berg*	Colmar-Berg		0		
Lorentzweiler*	Lorentzweiler		0		
Steinsel*	Steinsel		15	1	1
Ospem	Redange		Ca. 10		
Kehlen	Kehlen		4	0	

Plecotus austriacus: presence control

Green = stable population size
Red = decline or roost deserted

* = Decline before 2013



1.2. Winter roost controls

Two winter roosts are checked per year > 12 roosts within the reporting period

Date	Sites	Numbers and species
2013/2014:	Merkholtz Ardoisière	3 <i>M bart</i> , 3 <i>M nattereri</i> , 1 <i>M daubentonii</i> , 1 <i>M myotis</i>
	Huldange	6 <i>M daubentonii</i> , 5 <i>M bart</i> , 4 <i>M brandtii</i> , 1 <i>Pl auritus</i> , 3 indet. 4 <i>M myotis</i>
2014/2015	Tunnel Fouhren	
	Mine de Welteschgrond (partie)	2 <i>M myotis</i> , 1 <i>M daubentonii</i>
2015/2016	Tunnel Fouhren	2 <i>M myotis</i> , 1 <i>M bart</i>
	Four à chaux Potaschbiereg	1 <i>M myotis</i>
2016/2017	Ardois. Schimpach-bas	1 <i>M myotis</i>
	Ardois. Schimpach-puits	1 <i>M myotis</i> , 1 <i>M daubentonii</i> , 2 <i>M bart</i> , 1 <i>Pl auritus</i>
	Grotte Ste. Barbe	297 <i>M myotis</i> , 6 indet. (count 1. April)





2. Swarming sites

Monitoring of chosen underground sites to survey swarming behaviour in autumn and species composition.

Two sites per year are chosen and monitored by mist-netting.



Year	Locality	Site	Species	No. Species
2014	Schifflange	Weimeschköppchen	Mmyo, Mema, Mnat, Paur, Ppip, Eser	6
	Rumelange	Welteschgrond	Mmyo , Mbec, Mema, Mbart, Mmys, Mnatt, Paur	7
2015	Grevenmacher	Keelsbach	Bbar, Mdaub, Eser, Mema, Mbec, Mmys, Paur	7
	Schifflange	Weimeschköppchen	Mmyo, Mema, Mnat, Mmys, Mbran, Mdaub, Paur, Eser , Ppip	9
2016	Tétange	Mine Fer Boron	Mdaub, Mmyo , Mbec , Mema, Mnat, Paur, Rfer	7
	Girsterklus	Mine de gypse	Bbar , Mmys, Mmyo, Mema, Mbec, Eser, Paur	7
2017	Mullerthal	Keltenhiel	Mmyo , Mbran, Mmyo, Mmys, Mbec, Mema, Ppip, , Paur	8
	Mullerthal	Ste. Barbe	Mmyo , Mema, Mmys, Mbec, Mnat, Paur	6
	Schoenfels	Huellay	Mema , Mbec, Ppip, Paur	4

3. Completion of standard data forms

Survey of selected Natura 2000 sites by mist-netting
> from 2015 to 2016 altogether 11 sites were surveyed



Year	Site	Name	Species Annex II	Species Annexe IV
2015	LU0001066	Grosbous-Seitert		<i>P pipistrellus</i>
	LU0001010	Grosbous-Neibruch	<i>M myotis</i>	<i>P pipistrellus</i> , <i>Pl austriacus</i>
	LU0001027	Sanem-Grouseboesch/ Schouweiler-Bitchenheck	<i>M myotis</i> , <i>M bechsteinii</i>	<i>M daubentonii</i> , <i>M mystacinus</i> , <i>M alcathoe</i> (maternity), <i>P pipistrellus</i> , <i>Pl auritus</i> , <i>Pl austriacus</i>
	LU0001025	Hautcharge/Dalhem-Asselborner et Boufferdanger Muer		<i>M daubentonii</i> , <i>P pipistrellus</i>

.... Completion of standard data forms

Year	Site	Name	Species Annexe II	Species Annexe IV
2016	LU0001007	Vallée supérieure de la Sûre	<i>M bechsteinii</i> , <i>M emarginatus</i>	<i>M nattereri</i> , <i>M daubentonii</i> , <i>Pl austriacus</i> , <i>P pipistrellus</i> , <i>N leisleri</i> , <i>E serotinus</i>
	LU0001008	Vallée de la Sûre moyenne et de Esch/Sûre à Dirbach	<i>M myotis</i>	<i>P pipistrellus</i> , <i>N leisleri</i>
	LU0001025	Hautscharage/Dalhem-Asselborner et Boufferdanger Muer	<i>M bechsteinii</i> (Maternity: 14 bats), <i>M myotis</i>	<i>Pl auritus</i> (reprod.), <i>P pipistrellus</i> , <i>N leisleri</i> , <i>M alcathoe</i> , <i>E serotinus</i>
	LU0001027	Sanem-Grouseboesch/Schouweiler-Bitchenheck	<i>M bechsteinii</i>	<i>M alcathoe</i> (maternity: 22 bats), <i>P pipistrellus</i>
	LU0001072	Massif forestier du Stiefeschboesch	<i>M bechsteinii</i> (maternity: > 14), <i>M myotis</i>	<i>Pl auritus</i> , <i>P pipistrellus</i> , <i>M nattereri</i>
	LU0001073	Massif forestier du Ielboesch	<i>M myotis</i> , <i>M emarginatus</i>	<i>P pipistrellus</i> , <i>M mystacinus</i>
	LU0001015	Vallée de l'Ernz blanche	<i>R ferrumequinum</i>	

Monitoring of bats in Luxembourg: what is left to be done ?

- continuous efforts in yearly checking of the maternity colonies of Annexe II species
- continuous efforts in presence recording of chosen Annexe IV species

Aim of the HD: maintain the populations in a favourable conservation status

- Increase knowledge on factors influencing the distribution patterns
- Increase knowledge on threats (intensification of land use, fragmentation of foraging habitats and migrating corridors, silvicultural practices, roost disturbances and losses)
- Develop and realize appropriate measures to conserve the important habitat features
- Our commun aim: *improve the conservation status of bat species in Luxembourg*

Thank you for your attention

Special thanks to all colleagues for their help improving this presentation!

