

# EUROBATS National Implementation Report

In the Resolution 7.4, the 7th Meeting of Parties to EUROBATS decided to adopt a new format for the National Implementation Reports and instructed the Secretariat to make this new format available for online completion in time for MoP8.

Present format of national reports was carefully revised by the relevant Intersessional Working Group during the 20th Meeting of the Advisory Committee (2015) in order to include the Resolutions of MoP7 and is now available on the CMS Family Online Reporting System (ORS).

Please visit the Support Centre page in case of any questions regarding the Online Reporting System. The link is available in the bottom left corner.

## A. General Information

Name of your country

> Republic of Croatia

Period covered by this report

> July 2014 to June 2018

Is your country a party to EUROBATS Agreement?

Yes

Competent authority

Title, address, phone, fax, e-mail and other contact details

> Ministry of Environment and Energy

Nature Protection Directorate

HR - 10 000 Zagreb, Radnička cesta 80/3

tel: +385 (0) 1 4866 102

fax: +385 (0) 1 4866 100

website: <http://www.mzoe.hr>

Personal details of administrative focal point (s)

> Ms Zrinka Domazetović

Head of the Service for Biodiversity

Sector for Biodiversity and Strategic Affaires

Nature Protection Directorate

Ministry of Environment and Energy

HR - 10 000 Zagreb, Radnička cesta 80/3

tel. + 385 (0) 1 4866 127

fax + 385 (0) 1 4866 100

e-mail: [zrinka.domazetovic\[at\]mzoe.hr](mailto:zrinka.domazetovic[at]mzoe.hr)

Please give details of designated scientific focal points

> MSc Daniela Hamidović

senior expert advisor

Department for wild and domesticated taxa and habitats

Croatian Agency for Environment and Nature

HR-10000 Zagreb, Radnička cesta 80/7

tel: +385 (0) 1 55 02 952

fax: +385 (0)1 55 02 901

e-mail: [daniela.hamidovic\[at\]haop.hr](mailto:daniela.hamidovic[at]haop.hr)

## Compilers and contributors to this report

> Ms Zrinka Domazetović - administrative focal point, Ministry of Environment and Energy, Nature Protection Directorate

MSc Daniela Hamidović - scientific focal point, Croatian Agency for Environment and Nature

For activities of individual bat experts and organisations:

Association for Bat Conservation Tragus - <http://tragus.hr/>

Biology Students Association BIUS, Bat Group - <http://bius.hr/>

Croatian Biospeleological Society - <http://www.hbsd.hr/>

Geonatura Ltd - <https://www.geonatura.hr/>

Green Infrastructure Ltd - <https://green-in.hr/hr/>

Ms Darija Josić

Ms Mirna Mazija

Ms Dina Rnjak

Ms Vida Zrnčić

## **B. Status of bat species within the territory**

Please assess a national status ONLY for those bat species from the Annex 1 to EUROBATS Agreement that were recorded in your country

### **Rhinolophus blasii Peters, 1866**

Status of the species occurrence

Resident

Overall national trend

Indeterminate

Status in the National Red List (when it exists)

VU, Vulnerable

Year of assessment

> 2006

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

### **Rhinolophus euryale Blasius, 1853**

Status of the species occurrence

Resident

Overall national trend

Indeterminate

Status in the National Red List (when it exists)

VU, Vulnerable

Year of assessment

> 2006

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

### **Rhinolophus ferrumequinum (Schreber, 1774)**

Status of the species occurrence

Resident

Overall national trend

Indeterminate

Status in the National Red List (when it exists)

NT, Near Threatened

Year of assessment

> 2006

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

### **Rhinolophus hipposideros (Bechstein, 1800)**

Status of the species occurrence

Resident

Overall national trend

Indeterminate

Status in the National Red List (when it exists)

NT, Near Threatened

Year of assessment

> 2006

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

## **Rhinolophus mehelyi Matschie, 1901**

### **General comments**

Comments

Add specific comments, if required

> The species is not longer on the List of bat species present in Croatia based on:

Tvrtković, N. (2016): The findings of Mehely's Horseshoe Bat (Chiroptera) in the last century in Croatia were mistakes in Identification. Natura Croatia, Vol 25, No1: 165-172.

file:///C:/Users/dhamidovic/Downloads/natcroat2016\_25\_1\_tvrtkovic%20(2).pdf

## **Barbastella barbastellus (Schreber, 1774)**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

DD, Data Deficient

Year of assessment

> 2006

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

## **Eptesicus nilssonii (Keyserling & Blasius, 1839)**

Status of the species occurrence

Occasional

### **General comments**

Comments

Add specific comments, if required

> Based on current findings the species is candidate for resident species, but more research is needed to confirm that:

TVRTKOVIĆ, Nikola, Šišmiši Hrvatske : kratka povijest istraživanja i priručnik za određivanje = short research history and identification key = Bats of Croatia / Nikola Tvrtković ; Rijeka : Prirodoslovni muzej Rijeka ; Zagreb : Hrvatski prirodoslovni muzej, 2017. - 104 pages

Overall national trend

Not studied

Status in the National Red List (when it exists)

NE, not evaluated

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

## **Eptesicus serotinus (Schreber, 1774)**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

NE, not evaluated

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

**Hypsugo savii (Bonaparte, 1837)**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

NE, not evaluated

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

**Myotis alcaethoe von Helversen & Heller, 2001**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

NE, not evaluated

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

**Myotis aurascens Kuzyakin, 1935**

**General comments**

Comments

Add specific comments, if required

> *Myotis aurascens* is removed from the list of bats species present in Croatia based on new evidence: TVRTKOVIĆ, Nikola, Šišmiši Hrvatske : kratka povijest istraživanja i priručnik za određivanje = short research history and identification key = Bats of Croatia / Nikola Tvrtković ; Rijeka : Prirodoslovni muzej Rijeka ; Zagreb : Hrvatski prirodoslovni muzej, 2017. - 104 pages

**Myotis bechsteinii (Kuhl, 1817)**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

VU, Vulnerable

Year of assessment

> 2006

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

### **Myotis blythii (Tomes, 1857)**

Status of the species occurrence

Resident

Overall national trend

Indeterminate

Status in the National Red List (when it exists)

NE, not evaluated

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

### **Myotis brandtii (Eversmann, 1845)**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

NE, not evaluated

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

### **Myotis capaccinii (Bonaparte, 1837)**

Status of the species occurrence

Resident

Overall national trend

Indeterminate

Status in the National Red List (when it exists)

EN, Endangered

Year of assessment

> 2006

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

### **Myotis dasycneme (Boie, 1825)**

Status of the species occurrence

Resident

### **General comments**

Comments

Add specific comments, if required

> We suppose species to be resident, but the species needs to be studied more, since it was found only in one cave during hibernation and confirmed by mistnetting near Croatian-Hungarian border.

TVRTKOVIĆ, Nikola, Šišmiši Hrvatske : kratka povijest istraživanja i priručnik za određivanje = short research

history and identification key = Bats of Croatia / Nikola Tvrtković ; Rijeka : Prirodoslovni muzej Rijeka ; Zagreb : Hrvatski prirodoslovni muzej, 2017. - 104 pages

Overall national trend

Not studied

Status in the National Red List (when it exists)

DD, Data Deficient

Year of assessment

> 2006

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

### **Myotis daubentonii (Kuhl, 1817)**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

NE, not evaluated

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

### **Myotis emarginatus (Geoffroy, 1806)**

Status of the species occurrence

Resident

Overall national trend

Indeterminate

Status in the National Red List (when it exists)

NT, Near Threatened

Year of assessment

> 2006

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

### **Myotis myotis (Borkhausen, 1797)**

Status of the species occurrence

Resident

Overall national trend

Indeterminate

Status in the National Red List (when it exists)

NT, Near Threatened

Year of assessment

> 2006

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

## **Myotis mystacinus (Kuhl, 1817)**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

NE, not evaluated

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

## **Myotis nattereri (Kuhl, 1817)**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

NE, not evaluated

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

## **Nyctalus lasiopterus (Schreber, 1780)**

Status of the species occurrence

Occasional

### **General comments**

Comments

Add specific comments, if required

> Species is probably resident, but more research is needed in order to confirm that.

Overall national trend

Not studied

Status in the National Red List (when it exists)

DD, Data Deficient

Year of assessment

> 2006

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

## **Nyctalus leisleri (Kuhl, 1817)**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

NT, Near Threatened

Year of assessment



> 2006

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

### **Nyctalus noctula (Schreber, 1774)**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

NE, not evaluated

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

### **Pipistrellus kuhlii (Kuhl, 1817)**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

NE, not evaluated

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

### **Pipistrellus nathusii (Keyserling & Blasius, 1839)**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

NE, not evaluated

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

### **Pipistrellus pipistrellus (Schreber, 1774)**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

NE, not evaluated

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

### **Pipistrellus pygmaeus (Leach, 1825)**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

NE, not evaluated

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

### **Plecotus auritus (Linnaeus, 1758)**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

NE, not evaluated

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

### **Plecotus austriacus (Fischer, 1829)**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

EN, Endangered

Year of assessment

> 2006

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

### **Plecotus kolombatovici Dulic, 1980**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

DD, Data Deficient

Year of assessment

> 2006

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

## **Plecotus macrobullaris Kuzyakin, 1965**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

DD, Data Deficient

Year of assessment

> 2006

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

## **Vespertilio murinus Linnaeus, 1758**

Status of the species occurrence

Resident

### **General comments**

Comments

Add specific comments, if required

> The species is probably resident, but more research is needed in order to confirm that.

Overall national trend

Not studied

Status in the National Red List (when it exists)

NE, not evaluated

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

## **Miniopterus schreibersii (Kuhl, 1817)**

Status of the species occurrence

Resident

Overall national trend

Indeterminate

Status in the National Red List (when it exists)

EN, Endangered

Year of assessment

> 2006

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

## **Tadarida teniotis (Rafinesque, 1814)**

Status of the species occurrence

Resident

Overall national trend

Not studied

Status in the National Red List (when it exists)

NE, not evaluated

Has the status been reported under the Article 17 of the Habitat Directive or for the Emerald network (non-EU countries)?

No

## **C. Measures taken to implement Article III of the Agreement**

Does the national legislation protect all bat species?

Yes

Please, give details of the legislation which is protecting bats

> Nature Protection Act (Official Gazette 80/2013 and 15/2018)

Ordinance on Strictly Protected Species (Official Gazette 144/2013 and 73/2016)

# 1. Guidelines for the issue of permits for the capture and study of captured wild bats

Does the system of permits or licenses for the capture of bats exist in your country?

Yes

Comments (optional)

> A permit to derogate from the measures of strict protection needs to be issued for any kind of intervention with bats (killing, capture, taking from nature, disturbance, destruction of habitats).

System of permits or licences to keep bats for educational or animal welfare purposes

In place

Comments

> A permit to derogate from the measures of strict protection needs to be issued for any kind of intervention with bats (killing, capture, taking from nature, disturbance, destruction of habitats). Rescue centres are authorised by the Ministry of Environment and Energy to take care of injured or sick strictly protected species, including bats.

System of permits or licences for sampling, ringing, killing of bats for scientific studies

Exists

Comments (optional)

> A permit to derogate from the measures of strict protection needs to be issued for any kind of intervention with bats (killing, capture, taking from nature, disturbance, destruction of habitats).

## 2. Identified and protected sites which are important to the conservation of bats

Click "expand" to see the questions!

### Resolution 5.7. Guidelines for the protection of overground roosts, with particular reference to roosts in buildings of cultural heritage importance

2.4. List of national important overground roosts (including legal/physical protection status)

Doesn't exist

2.5. National guidelines for custodians of historical buildings on the protection of bat roosts have been developed

No

2.6. Summary report on interactions between the relevant cultural and natural heritage agencies (attach a file or provide a description)

› The current data on overground roosts important for bats is stored in the database of the Croatian Agency for Environment and Nature.

Cooperation between the cultural heritage conservation departments or managers and nature protection sector in regards to bat roosts in cultural heritage buildings has been sporadic. In a few cases restoration works have been conducted in cooperation and under supervision of bat experts. Conservation measures for bats, to be undertaken during restoration of cultural heritage buildings, were given by bat experts in a few cases.

### Resolution 7.6. Guidelines for the protection and management of important underground habitats for bats

Updated counts of bats at each listed site are submitted to the Secretariat

Yes

#### 2.1. List of important underground sites

2.1. List of important underground sites for bats and measures of their protection (including Natura 2000, Emerald or other status) was submitted to EUROBATS

Yes

2.2. Management of important underground sites for bats is in accordance with EUROBATS Publication n°2

Yes

2.3. Other relevant activities for the protection of underground habitats

› Most of sites important for bats are recorded in the Croatian Agency for Environment and Nature database (both overground and underground sites). Ecological Network of the Republic of Croatia (Natura 2000) includes 78 Sites of Community Importance (SCI) for 12 bat species from Annex II of the Habitats Directive. An interactive map of the Natura 2000 sites can be found on the website <http://natura2000.eea.europa.eu/>. Some of the sites important for bats are inside protected areas (strict reserves, national or nature parks, special nature reserves, nature monuments, important landscapes), where additional protection measures and management exist. Furthermore, 23 Natura 2000 sites are planned to develop Management plans till 2022 which encompass 31 internationally important underground sites

### 3.Consideration given to habitats which are important to bats

Click "expand" to see the questions!

#### Resolution 7.7. Bat conservation and sustainable forest management

National guidance has been developed based on the principles in the EUROBATS Bats and Forestry leaflet

No

Examples of best practice for forest management are submitted to the Secretariat

No

Research in forest management that is sustainable for bats (attach file or provide links)

> - Mazija M. (2017): Protocol for monitoring forest bat species with special focus on Bechstein's bat (*Myotis bechsteinii*) in Park architecture monument Park Maksimir - preparation project for assessment of forest management practices:

- Mazija M. (2016): Bat research in four protected areas in Brodsko-posavska County - project which includes Prašnik forest as an example of recognising ecological value of unmanaged (pristine) forest habitat for bat species diversity

Other activities carried out under this resolution (optional)

> For forest dwelling bat species listed in the Annex II of the Habitats Directive, Natura 2000 sites were defined.

The Nature Protection Act prescribes it is necessary to safeguard the favourable status of wild species and habitats in using natural resources, which also applies to forest management plans. Forest management plans that can have adverse negative impact on Natura 2000 conservation objectives and integrity are subject to appropriate assessment procedure through which adequate mitigation measures are prescribed, when needed. Additionally, forest management plans can be elaborated as Natura 2000 management plans taking into account conservation objectives of Natura 2000 sites and defining the activities needed to achieve them. Such plans integrate activities needed to secure adequate degree of conservation for all Natura 2000 target species and habitats, including bat species. For strictly protected species that are not conservation objectives of a certain Natura 2000 site, additional nature protection requirements can be prescribed in the Appropriate Assessment procedure.

According to the Forestry Act, national forest and woodland management company »Hrvatske šume«, as well as private forest owners, are obliged to manage forests by preserving and improving biological and landscape diversity and taking care of forest ecosystem (taking care of other species in the ecosystem which are tied to dry or rotting trees i.e. leaving a required number of old, hollow and rotten trees in such a pattern and number to preserve the biological diversity).

#### Resolution 7.8. Conservation and management of critical feeding areas, core areas around colonies and commuting routes

Awareness of the importance of critical feeding areas, core areas around known colonies and commuting routes for bats exists

No

Measures to take bats into account in land use and planning decisions

Yes

#### Measures, if yes

Describe these measures, please

> Measures are more on a general level, and are more specific if certain plan, project or programme is to be evaluated under Strategic Impact Assessment, Environmental Impact Assessment or Appropriate Assessment. Certain conservation measures will be specified until 2022, during the development of management plans for 49 Natura 2000 sites where bats are conservation objectives.

Research and monitoring to improve understanding of the use of landscape by bats are ongoing

Yes

National guidelines, drawing on the general guidance published in EUROBATS Publication have been developed

No

Other activities carried out under this resolution (optional)

> Draft guidelines on conservation and management of critical feeding areas, core areas around colonies and commuting routes are being consulted during Environmental Impact Assessment, physical planning or



Appropriate Assessment procedures, as well as during Natura 2000 and protected areas management plan preparation.

## 4. Activities to promote the awareness of the importance of conservation of bats

Click "expand" to see the questions!

4.1. International Bat Night. Give details for each year: number of events and number of people participated

> International Bat Night events are organized each year by a number of public institutions that govern national parks, nature parks and protected areas on county or local level, as well as zoological gardens and natural history museums, in cooperation with bat organisations (Croatian Biospeleological Society, Association for Bat Conservation Tragus) and individual bat experts.

In the reporting period International Bat Night events were organised by (estimated number of participants, if available for a certain year, is given in brackets):

- national parks: Krka, Brijuni (2014 - 200 participants; 2015 - 300 participants; 2016 - 400 participants), Paklenica, Plitvička jezera

- nature parks: Medvednica (2014 - 300 participants; 2015 - 400 participants; 2016 - 1000 participants; 2017 - 1000 participants), Vransko jezero, Kopački rit

- public institutions that govern protected natural values on county or local level: Krapinsko-zagorska County (2015 - 30 participants; 2016 - 50 participants; 2017 - 70 participants), City of Zagreb, Cape Kamenjak, Rakovica Municipality - Baraćeve caves (2017 - 400 participants), Park-forest Marjan, Lokrum Island (2016 - 120 participants)

- Natural History Museum Rijeka

- Zagreb ZOO (2014 - 1000 participants; 2015 - 2000 participants; 2016 - 3000 participants), Osijek ZOO

- youth association Eco-Omblici

Each event was covered by the media on both national and regional level, as well as in the social networks on the Internet.

4.2. Details of other important activities which are worth to mention (educational centres, etc.)

> - XIIIth European Bat Research Symposium – organised by the Croatian Biospeleological Society from 01st to 05th September 2014 in Solaris Resort, Šibenik, Croatia, under the patronage of the State Institute for Nature Protection, with partner organizations Caving Club „Ursus Spaeleus“, Dinaridi – Society for the Research, Surveying and Filming of Karst Phenomena (DDISKF), Geonatura Ltd, Public Institution National Park Krka, SO HPK Sveti Mihovil, Association for Bat Conservation Tragus, Vincent Wildlife Trust and WWF – Mediterranean office

- International workshop "Developing Monitoring Programmes and Analysing Trends in Bats Populations in the Dinarics" - capacity building workshop in Skradin, Croatia, from 05th to 09th September 2014 organised by BatLife Partners: Croatian Biospeleological Society and Vincent Wildlife Trust, under Eurobats Project Initiative, under the patronage of State Institute for Nature Protection and with logistic support of the Public Institution National Park Krka, Geonatura Ltd and HEP Generation Ltd - HE Miljacka.

- Lecture "Bat fauna survey in cave Vrlovka and the proposal of permanent monitoring" - Croatian Biospeleological Society (Ms Vida Zrnčić), EUROBATS, 22nd Meeting of the Advisory Committee, Belgrade, Serbia, 27-29 March 2017

- In national parks, nature parks and protected areas on county or local level, many of visitor centres have part of the exhibition and educational trails some marked stops dedicated to bats and their role in the ecosystem

- Night of Biology - Each year the Division of Biology of the Faculty of Science (University of Zagreb) and the Biology Students Association BIUS organise this event to promote biology and involve visitors into their projects; the event includes the workshop on bats organised by the BIUS Bat group

- Citizen science project "Supporting bat populations of upper and middle course of Krka river" - bat box building workshops, educational lectures and monitoring of bat boxes involving local children and other interested citizens; 10 local partners with altogether 100 members; Association for Bat Conservation Tragus and Association Bioteka

- Croatian Parks Week in Nature Park Medvednica – Bat dedicated educational games, workshops for children, bat box building workshops organised by the Public Institution Nature Park Medvednica and the Association for Bat Conservation Tragus; 1000 visitors

- "PANDA - Project based teaching for gifted children" - educational walk in Park Maksimir with demonstration of field research methods by the Association for Bat Conservation Tragus as an example what is like to be active member of a bat research organisation; 20 gifted children participated

- Project "International Bat Night in the Lokrum Island Special Reserve of Forest Vegetation and capacity building in protection and conservation of bats in the Dubrovnik area; Croatian Biospeleological Society

### Resolution 4.11. Recognising the important role of NGOs in bat conservation

4.4. Details of NGOs participating in /contributing to bat protection and most valuable activities that have the potential to substantially improve transboundary cooperation and mutual assistance

> - Association for Bat Conservation Tragus - <http://tragus.hr/>

- Biology Students Association BIUS, Bat Group - <http://bius.hr/>
- Croatian Biospeleological Society - <http://www.hbsd.hr/>

## 5. Additional actions undertaken to safeguard populations of bats

Click "expand" to see the questions!

### Resolution 2.2. Consistent monitoring methodologies

5.1. Implementation of EUROBATS guidelines published in EUROBATS Publication n°5 to ensure consistency and information exchange between Parties and Range States

Yes

Please give details

> Forms for monitoring bats in overground and underground sites developed by the Croatian Agency for Environment and Nature (CAEN) are being used since 2013 and are a part of the contract to conduct monitoring between either the CAEN or the public institution governing certain protected area and bat experts. Every year the time and number of bat roosts to be monitored in each protected area, in a specific time of the year depending on the roost type, is being advised by the CAEN. National project on development of System for monitoring conservation status of species and habitats, which is implemented by CAEN, has started in mid 2018 and will continue till the end of 2022. The project includes development and testing of monitoring programs of all bat species present in Croatia. Those activities will be done taking into account the EUROBATS guidelines.

### Resolution 5.4. Monitoring bats across Europe

5.11. Involvement in a long-term pan-European surveillance to provide trend data

No

Awareness-raising of the importance of underground sites

Yes

Collaboration and information exchange with other Parties and range states on surveillance and monitoring activities

Yes

Please provide details

> Developing Monitoring Programmes and Analysing Trends in Bats Populations in the Dinarics – capacity building workshop, Skradin, Croatia, 2014, organised by BatLife Partners: Croatian Biospeleological Society and Vincent Wildlife Trust under Eurobats Project Initiative, [http://www.eurobats.org/summaries\\_of\\_conducted\\_projects](http://www.eurobats.org/summaries_of_conducted_projects)

5.14. Monitoring bats in accordance with EUROBATS Publication n°5

Yes

5.15. Capacity building of bat workers and surveyors to support the undertaking of bat surveillance projects

Exists

### Resolution 6.6. Guidelines for the prevention, detection and control of lethal fungal infections in bats

5.17. Surveillance for the presence of fungal infections

Yes

Please provide details

> During a regular winter monitoring at the Veternica Cave in 2011 a bat with a white nose was discovered and sent to Dr. Sébastien Puechmaille for DNA analysis to determine was the white nose caused by *Geomyces destructans*. Based on this, a Protocol for survey of lethal fungal infections in bats was developed. The coordinator of the Protocol is the Croatian Agency for Environment and Nature. Bat experts and NGOs from Croatia, Croatian Veterinary Institute, speleological societies and clubs are involved in the Protocol. In addition, a quick survey was also organized. More than ten caves were surveyed and in two caves bats with white noses were found and samples were taken. Regular winter monitoring at the Veternica Cave didn't report on new cases with White Nose Syndrome (WNS) suspected bats since then. During the winter monitoring in 2014 seven different caves were sampled for *Pseudogymnoascus destructans* according to the protocol prepared by Dr. Sebastien Puechmaille for the pan-european project. Monitoring of *Pseudogymnoascus destructans* presence is occasionally done in the Veternica cave - Nature Park Medvednica and Uviraljka cave - Nature park Papuk.

## Resolution 6.13. Bats as indicators for biodiversity

5.19. Does your country support a development of national, regional and pan-European biodiversity indicators for appropriate target audiences, using bat data

No

5.20. Bat data is incorporated within high profile national multi-taxa indicators

No

5.22. Cooperation platforms that facilitate the required data exchange

Don't exist

## Resolution 7.5. Wind turbines and bat populations

5.2. Raising awareness on the impact of turbines on bats and the existence of some unsuitable habitats or sites for construction

No

5.3. Pre-construction impact assessments, if possible, undertaken by suitably experienced bat experts

Yes

Please, give details

> According to the Ordinance on Requirements for Issuing Approvals to Legal Persons for Performing Professional Environmental Protection Activities from 2010, only legal persons with authorisation were able to conduct monitoring in the field of nature protection connected with the EIA studies. But due to the amendments to the Environmental Protection Act, this is no longer an obligation.

5.4. National guidelines were developed following Eurobats Pub. No. 6

No

National guidelines are implemented

Yes

Please, provide implementation details

> Each windfarm project in Croatia is subject to the Environmental Impact Assessment (EIA) procedure, and projects that can have adverse negative impact on Natura 2000 conservation objectives and integrity of the site are subject to Appropriate Assessment (AA) procedure. Comprehensiveness and expert merit of the EIA and AA study is being assessed at the beginning of the procedure by the nature protection sector (Ministry of Environment and Energy and Croatian Agency for Environment and Nature). For bats the most recent revision of the EUROBATS Guidelines for consideration of bats in wind farm projects is taken into account both for pre-construction and post-construction monitoring, although the National Guidelines were not revised after Publication No. 3.

5.5. Investigations and research for mitigating bat mortality have been undertaken

Yes

Please, list references, attach reports and articles

> - Fokus - center for research and preservation of nature (Pavlinić, Igor; Đaković, Maja) (2016): Bat monitoring at the wind farm "Obrovac" locality in Croatia during 2015, Report for the 1st year of research  
- Fokus - center for research and preservation of nature (Pavlinić, Igor; Đaković, Maja) (2017): Bat monitoring at the wind farm "Obrovac" locality in Croatia during 2016, Report for the 1st year of research  
- Geonatura (2017): Bat fauna monitoring during the use of Rudine wind farm - annual report 2016  
- Geonatura (2018): Bat fauna monitoring during the use of Rudine wind farm - annual report and final report 2017  
- Geonatura Ltd. (2015): Bat fauna monitoring during the use of Danilo wind farm - annual report 2014-2015  
- Geonatura Ltd. (2015): Bat fauna monitoring during the use of Danilo wind farm - annual report 2015-2016 and final report - -- Oikon Ltd. (2014): Monitoring of the effects on the bat population during the use of the Jelinak wind farm - report for 2013 - -- Oikon Ltd. (2014): Monitoring of bat mortality during the use of the Jelinak wind farm - monthly field reports March - August  
- Eurus Ltd. (2014): Complementary bat monitoring at Jelinak wind farm (1.7.2014. - 30.9.2014.)  
- Alcalde, Juan Tomás (2015): Bat activity research at Jelinak wind farm (Croatia) in 2014  
- Geonatura Ltd. (2017): Bat fauna monitoring during the use of Ogorje wind farm - annual report 2016  
- Geonatura Ltd. (2018): Bat fauna monitoring during the use of Ogorje wind farm - annual and final report 2017  
- Pavlinić, Igor; Đaković, Maja (2014): The results of bat fauna monitoring in the first year after construction of Pometeno brdo wind farm

- Pavlinić, Igor; Đaković, Maja (2015): The results of bat fauna monitoring in the second year after construction of Pometeno brdo wind farm
- Fokus - center for research and preservation of nature (Pavlinić, Igor; Đaković, Maja) (2014): The results of bat fauna monitoring in the first year after construction of Ponikve wind farm
- Fokus - center for research and preservation of nature (Pavlinić, Igor; Đaković, Maja) (2015): The results of bat fauna monitoring in the second year after construction of Ponikve wind farm
- Pavlinić, Igor; Đaković, Maja (2014): The results of bat fauna monitoring in the first year after construction of Voštane and Kamensko wind farm
- Pavlinić, Igor; Đaković, Maja (2016): The results of bat fauna monitoring in the second year after construction of Voštane and Kamensko wind farm
- Pavlinić, Igor (2013): The results of bat fauna monitoring in the first year after construction of ZD 3 wind farm
- Pavlinić, Igor (2014): The results of bat fauna monitoring in the second year after construction of ZD 3 wind farm
- Pavlinić, Igor (2013): The results of bat fauna monitoring in the first year after construction of ZD 2 wind farm
- Pavlinić, Igor; Đaković, Maja (2014): The results of bat fauna monitoring in the second year after construction of ZD 2 wind farm
- Fokus - center for research and preservation of nature (Pavlinić, Igor; Đaković, Maja) (2016): The results of two year bat fauna monitoring at ZD 4 Benkovac wind farm
- Pavlinić, Igor; Đaković, Maja (2013): The results of bat fauna monitoring in the first year after construction of ZD 6 Velika Popina wind farm
- Pavlinić, Igor; Đaković, Maja (2014): The results of bat fauna monitoring in the second year after construction of ZD 6 Velika Popina wind farm
- Falconry Centre (2013): Final report on the survey of impacts of Crno brdo wind farm on birds and bats (1.1.2012. - 31.12.2012.)

## 5.6. Additional information on research on the impact of wind turbines on bat populations

List new references, attach reports or articles

- > - Oikon (2013): Bat fauna monitoring during the construction of Jelinak wind farm in 2012
- Geonatura (2014): Bat fauna monitoring during the construction of Ogorje wind farm - final report 2013/2014
- Geonatura (2014): Bat fauna monitoring during the construction of Danilo wind farm - annual report 2013/2014
- Geonatura (2015): Bat fauna monitoring before the operation at Rudine wind farm - annual report 2014/2015

## 5.7. Post-construction monitoring, if possible, is undertaken by suitably experienced bat experts

If yes, give details

Yes

## 5.8. Raw data from environmental impact assessment and post-construction monitoring is available for independent scientific analysis

No

## 5.9. Blade feathering, higher cut-in wind speeds and shutting down turbines are used to reduce or avoid bat mortality

Yes

Please, provide details

> The Decision on Environmental Acceptability of the Project prescribes mitigation measures if negative impact on bats is foreseen by the Environmental Impact Assessment study. Mitigation measures for some projects include blade feathering, higher cut-in wind speeds and shutting down turbines.

Other activities carried out under Resolution 7.5 (optional)

> Rnjak D., V. Zrnčić, N. Hanžek, G. Rnjak and M. Grgurev (2015): Bat fauna monitoring before and during operation phase of the wind farm Danilo in Croatia. Oral presentation. Regional Workshop: "Wind Farms and the Environment - impact on birds and bats". Belgrade

## **Resolution 7.9. Impact of roads and other traffic infrastructures on bats**

### 5.23. Bats are taken into account during the planning, construction and operation of roads and other infrastructure projects

Yes

### 5.24 Pre-construction strategic and environmental impacts assessment procedures are mandatory

Are mandatory

5.25. Post-construction monitoring

Is mandatory

5.26. Raw data from environmental impact assessment and post-construction monitoring is available for independent scientific analysis

No

5.27. Research into the impact of new and, where appropriate, existing roads and other infrastructure on bats and into the effectiveness of mitigation measures

Yes

5.28. National guidelines are developed

No

**Resolution 7.10. Bat Rescue and Rehabilitation**

5.29. Animal rescue and rehabilitation systems are effective in the country

Yes

5.30. Collaboration between bat rehabilitators and scientists

Doesn't exist

5.31. Bat rehabilitators contribute their data to a national database

Yes

Please provide information about this database

> Rescue centres that take care of injured or sick strictly protected species, including bats, are authorised by the Ministry of Environment and Energy. Based on an annual contract for financing their activities from the state budget, rescue centres are obliged to submit annual reports (in excel format) with data on all animals they received and the process of their recovery. The online database is foreseen in near future.

**Resolution 7.11. Bats and building insulation**

5.34. Impacts on bats are included in the environmental assessment of insulation programs

No

**Resolution 7.12. Priority species for autecological studies**

**Rhinolophus blasii Peters, 1866**

Some studies have been conducted (are ongoing) for this species in the country

Yes

Studies on:

|     | Winter roosts                       | Summer roosts            | Swarming sites           | Migration                | Spatial and habitat use  | Foraging behaviour       | Diet                     |
|-----|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Yes | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| No  | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Nyctalus lasiopterus (Schreber, 1780)**

Some studies have been conducted (are ongoing) for this species in the country

Yes

Studies on:

|     | Winter roosts            | Summer roosts            | Swarming sites           | Migration                           | Spatial and habitat use  | Foraging behaviour       | Diet                     |
|-----|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|
| Yes | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| No  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Please add below or attach a list of references

> First data on mitochondrial DNA diversity of giant noctule (*Nyctalus lasiopterus*) sampled in Croatia – poster in preparation for the 13th Croatian Biological Congress, Poreč, Croatia, September 2018

### **Plecotus kolombatovici Dulic, 1980**

Some studies have been conducted (are ongoing) for this species in the country

Yes

Studies on:

|     | Winter roosts            | Summer roosts                       | Swarming sites           | Migration                | Spatial and habitat use             | Foraging behaviour       | Diet                     |
|-----|--------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| Yes | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| No  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |

Please add below or attach a list of references

> Schofield H., Hamidović D., Glover A., Krstinić B., Krstinić D., Rnjak D., Crnčević M. (2018): Radio-tracking reveals the roosting and foraging behaviour of *Plecotus kolombatovici* on Lokrum island, Dubrovnik, Regional symposium “Conservation status of bats in the central Europe and Western Balkan”, Sarajevo, 31. 5. – 1. 6. 2018., in Program and book of abstract, (eds. J. Mulaomerović & S. Milanolo) Center for karst and speleology: 28.



## 6. Recent and ongoing programmes (including research and policy initiatives) relating to conservation and management of bats

Click "expand" to see the questions!

### Resolution 2.3. Transboundary programme: species proposals

6.1. Inclusion of *Myotis dasycneme* and *Pipistrellus nathusii* in transboundary cooperation

No

### Resolution 2.4. Transboundary programme: habitat proposals

6.2. National research on underground sites has been undertaken since the last reporting

Yes

Please list references

- > Fressel N., Žvorc P., Zrnčić V. (2014): Istraživanje i preliminarna analiza faune šišmiša špilje Manita peć u NP "Paklenici, Hrvatsko biospeleološko društvo/ Research and preliminary analysis of the Manita peć cave bat fauna in the National Park Paklenica, Croatian Biospeleological Society
- Hamidović D. (2017): Međunarodno važna podzemna skloništa za šišmiše u Hrvatskoj, Međunarodni znanstveno-stručni skup "Georaznolikost, geobaština i geoturizam u Krškim područjima", Perušić, 18.-19.2.2017., Zbornik sažetaka (Buzjak N. Paar D. ur.), Sveučilište u Zagrebu, Prirodoslovno-matematički fakultet, Geografski odsjek; Javna ustanova za upravljanje zaštićenim područjima i drugim zaštićenim dijelovima prirode na području Zagrebačke županije „Zeleni prsten“, Samobor: 17. (poster) / Internationally important underground sites for bats in Croatia, International conference "Geodiversity, Geoheritage and Geotourism in Karst Areas", Book of Abstracts (Buzjak N. Paar D. eds), University of Zagreb, Faculty of Science, Geography Department; Public institution for protected areas and other protected parts of nature in Zagreb County "Zeleni prsten", Samobor: 17. (poster)
- Hamidović, D.; Desnica, Sonja. (2015): Međunarodno važna podzemna skloništa za šišmiše u Hrvatskoj - primjena u očuvanju i zaštiti ZBORNİK SAŽETAKA 12. HRVATSKOG BIOLOŠKOG KONGRESA, Klobučar, G., Kopjar, N., Gligora Udovič M., Lukša, Ž, Jelić D (ur.). Zagreb : Hrvatsko biološko društvo, :10-11 / Internationally important underground sites for bats - conservation and protection application, 12th CROATIAN BIOLOGICAL CONGRESS with International Participation, Sveti Martin na Muri, 18. - 23. IX 2015, BOOK OF ABSTRACTS, Croatian Biological Society 1885: 10-11- (oral presentation)
- Hamidović, D., Žvorc, P. (2014): Hibernating Lesser Horseshoe Bat, *Rhinolophus hipposideros*, still growing in numbers in the Veternica Cave, Croatia, after winter restrictions for visitors and new gating // XIII EUROPEAN BAT RESEARCH SYMPOSIUM - Book of Abstracts, September 01-05, 2014, Šibenik, Croatia / Peter H.C., Lina ; Hutson, Anthony M. (eds.). Zagreb : Croatian Biospeleological Society, 2014. 75-75 (poster)
- Kipson M. (2015, 2016): Monitoring (praćenje stanja) šišmiša u Nacionalnom parku Plitvička jezera Hrvatsko biospeleološko društvo/ Bat monitoring in the National park Plitvice Lakes. Croatian Biospeleological Society
- Mazija, M. (2014): Monitoring porodiljnih kolonija vrsta šišmiša veliki potkovnjak (*Rhinolophus ferrumequinum*) na osam lokaliteta na području Hrvatske / Monitoring of the Greater Horseshoe bat (*Rhinolophus ferrumequinum*) nurseries at eight localities in Croatia
- Mazija, M., Domazetović, Z. (2014): Monitoring hibernacijskih kolonija šišmiša vrste veliki potkovnjak (*Rhinolophus ferrumequinum*) na sedam lokaliteta na području Hrvatske, Udruga za zaštitu šišmiša *Tragus* / Monitoring of the Greater Horseshoe bat (*Rhinolophus ferrumequinum*) hibernacula at seven localities in Croatia, Association for Bat Conservation *Tragus*
- Mazija, M., Rnjak, G. (2014): Istraživanja hibernacijske kolonije šišmiša u jami Suhodolka u Parku prirode Papuk te utvrđivanje prisutnosti gljivice *Geomyces destructans*, Udruga za zaštitu šišmiša *Tragus* / Research of bat hibernaculum in the Suhodolka pit in the Nature Park Papuk and research on presence of the fungus *Geomyces destructans*, Association for Bat Conservation *Tragus*
- Ozimec R., R, Jalžić B. Mihoci I., Hanžek N., Rnjak G., Grgurev M., Lacković D., Matočec N. (2015): Studija glavne ocjene prihvatljivosti zahvata za ekološku mrežu HE OMBLA. Knjiga 3. Bioraznolikost špiljskih objekata na širem području, OIKON d.o.o. Institut za primijenjenu ekologiju, Hrvatski prirodoslovni muzej, GEONATURA d.o.o. za stručne poslove zaštite prirode: 198 str. / Appropriate Assessment report on the impact of the hydroelectric powerplant Ombla, Book 3. Biodiversity of caves in the wider area of the project, OIKON Ltd, Croatian Natural History Museum, GEONATURA Ltd, 198 pp
- Rnjak d., Rnjak G. (2015): Monitoring šišmiša na području Parka prirode Telašćica 2015. godine / Monitoring of bats in the Nature Park Telašćica
- Rnjak d., Rnjak G. (2017): Istraživanje šišmiša u špilji Golubinka, GEONATURA d.o.o. /Bat research in the Golubinka cave, GEONATURA Ltd
- Rnjak d., Rnjak G., Maslač M., Hanžek N. (2016): Stručna podloga za Plan upravljanja speleološkim objektima na širem području NP „Krka“ u svrhu praćenja i očuvanja faune šišmiša, GEONATURA d.o.o. / Baseline study for the Management plan of speleological objects in the wider area of the National Park Krka for the monitoring and conservation of bat fauna, GEONATURA Ltd

Rnjak D., Rnjak G., Zrnčić V., Hanžek N. (2015): Monitoring porodiljnih kolonija šišmiša na području NP Krka 2015. godine / Monitoring of bat nurseries in the National Park Krka in 2015

Rnjak G., Rnjak D., Meleš S. (2017): Istraživanja hibernacijske kolonije šišmiša u Uviraljci i Suhodolki u svrhu utvrđivanja prisutnosti vrste močvarni šišmiš (*Myotis dasycneme*), GEONATURA d.o.o / Research of the bat hibernacula in the Uviraljka cave and the Suhodolka pit to determine the presence of the Pond Bat (*Myotis dasycneme*), GEONATURA Ltd

Rnjak, G. (2014): Opis i stanje osam speleoloških objekata za potrebe provođenja inventarizacije i monitoringa šišmiša / Description and status of eight speleological objects for bat inventory and monitoring

Žvorc P., Kipson M., Hamidović D. (2016): Istraživanje faune šišmiša u špilji Vrlovka i prijedlog njihovog trajnog monitoringa, Hrvatsko biospeleološko društvo, 88 str. / Research of bat fauna in the Vrlovka cave and proposal for continuous bat monitoring, Croatian Biospeleological Society, 88 pp

Žvorc P., Kipson M., Hamidović D. (2017): Cave Vrlovka in Croatia and tourism - yes or no? - recommendations based on bat fauna research, in 14th European Bat Research Symposium - EBRS 2017 Abstract Book (ed. Hutson A.M. Lina P. H.C.), Donostia, The Basque Country, 1-5 August 2017: 202. (poster).

Žvorc, P. & Hamidović, D. (2014, 2015, 2016, 2017): Monitoring šišmiša u špilji Veternici na području Parka prirode Medvednica, Hrvatsko biospeleološko društvo / Monitoring of bats in the Veternica cave in the Nature Park Medvednica, Croatian Biospeleological Society

Mazija M., Renje S. (2017): Monitoring of bat fauna in geomorphological nature monument Vrlovka cave (Kamanje) with preparation of visitor program proposal for the cave, Association for Bat Conservation Tragus

Mazija M. (2016): Bat research in Cave Park Grabovača

### 6.3. National research on bats in forests

No

## Resolution 5.2. Bat rabies in Europe

### 6.5. National bat rabies surveillance network

Yes

Please give details

> Active surveillance of rabies in bats - the essential factor for the assessment of the future threat - BatsRabTrack 2016-2019, scientific project funded by National Science Foundation led by Croatian Veterinary Institute (<http://sismisi.veinst.hr/>). Croatian Veterinary Institute is national referral rabies laboratory  
Zrnčić V., Šimić I., Lojkić I., Čukušić A, (2018): What do we know about rabies of Croatian bat fauna - active rabies surveillance in selected roosts: Regional symposium "Conservation status of bats in the central Europe and Western Balkan", Sarajevo, 31. 5. - 1. 6. 2018., in Program and book of abstract, (eds. J. Mulaomerović & S. Milanolo) Center for karst and speleology: 32.

### 6.6. Vaccination against rabies is compulsory

Yes

### 6.7. Details of the institution(s) in charge of recording of all test results and their submission to the World Health Organisation

> Andrija Stampar Teaching Institute of Public Health  
Address: Mirogojska 16, 10000 Zagreb, Croatia

## Resolution 6.5. Guidelines on ethics for research and field work practices

6.9. National Code of Practice that addresses the context and legitimacy of acquisition, due diligence, long-term care, documentation, relevance and institutional aims

Doesn't exist

## Resolution 6.8. Monitoring of daily and seasonal movements of bats

Please select a species for which a research in daily/seasonal movements has been conducted from the list

### **Rhinolophus blasii Peters, 1866**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Rhinolophus euryale Blasius, 1853**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Rhinolophus ferrumequinum (Schreber, 1774)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

Yes

Please attach a list of references

> Presetnik P., Baković R. (2016): First recorded crossborder migration of Greater Horseshoe Bat (*Rhinolophus ferrumequinum*) between Slovenia and Croatia, *Hypsugo*, Journal of Bat Research in the Balkans Year I, No 1: 38-40

### **Rhinolophus hipposideros (Bechstein, 1800)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Barbastella barbastellus (Schreber, 1774)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Eptesicus nilssonii (Keyserling & Blasius, 1839)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Eptesicus serotinus (Schreber, 1774)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Hypsugo savii (Bonaparte, 1837)**

New data on daily movements was obtained

Yes

Please attach a list of references

> Kipson M., Šálek M., Lučan M., Bartonička T., Mikova E., Uhrin M., Jahelkova H., Pušić A., Kovač D., Majer M., Horaček I.: The curious case of Savi's pipistrelle, *Hypsugo savii*: new insight on roosting ecology and behaviour from the Mediterranean region, XIII European Bat Research Symposium, Solaris, Croatia, 1.-5. September 2014, in Book of abstracts (eds. P. Lina & A. T. Hutson), Croatian Biospeleological Society, Zagreb: 91

New data on seasonal movements was obtained

No

### **Myotis alcaethoe von Helversen & Heller, 2001**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Myotis bechsteinii (Kuhl, 1817)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Myotis blythii (Tomes, 1857)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Myotis brandtii (Eversmann, 1845)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Myotis capaccinii (Bonaparte, 1837)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Myotis dasycneme (Boie, 1825)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Myotis daubentonii (Kuhl, 1817)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Myotis emarginatus (Geoffroy, 1806)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Myotis myotis (Borkhausen, 1797)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Myotis mystacinus (Kuhl, 1817)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Myotis nattereri (Kuhl, 1817)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Nyctalus lasiopterus (Schreber, 1780)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Nyctalus leisleri (Kuhl, 1817)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Nyctalus noctula (Schreber, 1774)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Pipistrellus kuhlii (Kuhl, 1817)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Pipistrellus nathusii (Keyserling & Blasius, 1839)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Pipistrellus pipistrellus (Schreber, 1774)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Pipistrellus pygmaeus (Leach, 1825)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Plecotus auritus (Linnaeus, 1758)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Plecotus austriacus (Fischer, 1829)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Plecotus kolombatovici Dulic, 1980**

New data on daily movements was obtained

Yes

Please attach a list of references

> Schofield H., Hamidović D., Glover A., Krstinić B., Krstinić D., Rnjak D., Crnčević M. (2018): Radio-tracking reveals the roosting and foraging behaviour of *Plecotus kolombatovici* on Lokrum island, Dubrovnik, Regional symposium "Conservation status of bats in the central Europe and Western Balkan", Sarajevo, 31. 5. – 1. 6. 2018., in Program and book of abstract, (eds. J. Mulaomerović & S. Milanolo) Center for karst and speleology: 28

New data on seasonal movements was obtained

No

### **Plecotus macrobullaris Kuzyakin, 1965**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Vespertilio murinus Linnaeus, 1758**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Miniopterus schreibersii (Kuhl, 1817)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

### **Tadarida teniotis (Rafinesque, 1814)**

New data on daily movements was obtained

No

New data on seasonal movements was obtained

No

## **7. Consideration being given to the potential effects of pesticides on bats, and their food sources and efforts to replace timber treatment chemicals which are highly toxic to bats**

Click "expand" to see the questions!

### **Resolution 4.5. Guidelines for the use of remedial timber treatment**

7.1. Small projects to provide basic data to allow an assessment of the potential impact of industry on bat populations

No

7.2. Raising awareness of product users is taking place

No

7.3. Legislation on products which have any adverse effects on bats

Doesn't exist

### **Resolution 6.15. Impact on bat populations of the use of antiparasitic drugs for livestock**

7.4. Efficient non-chemical methods to control livestock parasites and use of products of least toxicity to non-target species implemented

No

7.5. Research on the use of antiparasitic drugs

No

7.6. Recommendations in Annex I to the Resolution 6.15 are adopted

No



## 8. Further important activities to share with other Parties and Range States

Give details or provide links

- Bilgin, R.; Gürün, K.; Rebelo, H.; Puechmaille, S. J.; Maracı, Ö; Presetnik, P.; Benda, P.; Hulva, P.; Ibáñez, C.; Hamidović, D.; Fressel, N.; Horáček, I.; Karataş, A.; Karataş, A.; Allegrini, B.; Georgiakakis, P.; Gazaryan, S.; Nagy, Z. L.; Abi-Said, M.; Lučan, R. K.; Bartonička, T.; Nicolau, H.; Scaravelli, D.; Karapandža, B.; Uhrin, M.; Paunović, M.; Juste, J. 2016: Circum-Mediterranean phylogeography of a bat coupled with past environmental niche modeling: A new paradigm for the recolonization of Europe?. *Molecular Phylogenetics and Evolution*. 99 ; 323-336
- Gürün, K.; Juste, J.; Puechmaille, S. J.; Hulva, P.; Ibáñez, C.; Presetnik, P.; Gazaryan, S.; Georgiakakis, P.; Ramos Pereira, M. J.; Palmeirim, J.; Hamidović, D.; Allegrini, B.; Nagy, Z. L., Uhrin, M.; Abu-Said, M.; Nicolou, H.; Scaravelli, D.; Bilgin, R.. (2014): An investigation of the phylogeography and the evolutionary history of *Miniopterus schreibersii* (Mammalia: Chiroptera) using nuclear microsatellites // Book of Abstracts, XIIIth European Bat Research Symposium, September 01- 05, 2014 Šibenik, Croatia / Lina, Peter H.C., Hutson, Anthony M. (eds.). Zagreb : Croatian Biospeleological Society: 73-73 (poster).
- Gürün, K.; Juste, J.; Puechmaille, S. J.; Hulva, P.; Ibáñez, C.; Presetnik, P.; Gazaryan, S.; Georgiakakis, P.; Ramos Pereira, M.J.; Palmeirim, J.; Hamidović, D.; Allegrini, B.; Nagy, Z. L.; Uhrin, M.; Abu-Said, M.; Nicolou, H.; Scaravelli, D.; Bilgin, R.. (2014): An investigation of the phylogeography and the evolutionary history of *Miniopterus schreibersii* (Mammalia: Chiroptera) using nuclear microsatellites. XIII EUROPEAN BAT RESEARCH SYMPOSIUM - Book of Abstracts, September 01-05, 2014, Šibenik, Croatia, Peter H.C., Lina ; Hutson, Anthony M. (eds.). Zagreb : Croatian Biospeleological Society: 73-73 (poster)
- Hamidović D. (2017): Međunarodno važna podzemna skloništa za šišmiše u Hrvatskoj / Internationally important underground sites for bats in Croatia, Međunarodni znanstveno-stručni skup "Georaznolikost, geobaština i geoturizam u Krškim područjima" / International conference "Geodiversity, Geoheritage and Geotourism in karst areas", Perušić, 18.-19.2.2017., Zbornik sažetaka / Book of Abstracts, (Buzjak N. Paar D. ur./eds), Sveučilište u Zagrebu, Prirodoslovno-matematički fakultet, Geografski odsjek, Javna ustanova za upravljanje zaštićenim područjima i drugim zaštićenim dijelovima prirode na području Zagrebačke županije "Zeleni prsten", Samobor/ University of Zagreb, Faculty of Science, Geography department, Public institution for protected areas and other protected parts of nature in Zagreb County „Zeleni prsten: 17. (Poster presentation)
- Hamidović D. , Tvrtković N. (2017): Pregled stanja istraženosti faune šišmiša šireg područja Nacionalnog parka Sjeverni Velebit / Overview of the National park Northern Velebit wider area bat research, Znanstveno-stručni skup „Od istraživanja k dobrom upravljanju Nacionalnim parkom Sjeverni Velebit"/Scientific-expert conference „From research towards good management of the National Park Northern Velebit , Zbornik sažetaka // Book of abstracts, (Tomaić I.K., Lupret-Obradović S., Šilić T. ur/eds , Krasno, May 2017, Javna ustanova „Nacionalni park Northern Velebit"/Public Institution National Park Sjeverni Velebit: 28-29.
- Hamidović D., Kipson M., Fressel N., Presetnik P., Corben C., Puechmaille S., Glover A., Barlow K., Schofield H., Rnjak D. (2015): Pregled stanja istraženosti faune šišmiša šireg područja Nacionalnog parka Krka, Program i knjiga sažetaka znanstveno stručnog skupa Vizija i izazovi upravljanja zaštićenim područjima prirode u Republici Hrvatskoj: Aktivna zaštita i održivo upravljanje u Nacionalnom parku Krka, (Marguš D., ur.), 28. Rujna-8. Listopada 2015, JU NP Krka: 40-41 / An overview of bat fauna research status for wider area of Krka National Park, Programme and Book of Abstracts, (Marguš D. ed), Scientific-Expert Conference „Vision and Challenges of protected areas management in Croatia: Active conservation and sustainable management in the Krka National Park, Šibenik, 28th September-3rd October 2015., Krka National Park: 40-41.
- Hamidović, D., Žvorc, P. (2014): Hibernating Lesser Horseshoe Bat, *Rhinolophus hipposideros*, still growing in numbers in the Veternica Cave, Croatia, after winter restrictions for visitors and new gating. XIII EUROPEAN BAT RESEARCH SYMPOSIUM - Book of Abstracts, September 01-05, 2014, Šibenik, Croatia, Peter H.C., Lina ; Hutson, Anthony M. (eds.). Zagreb : Croatian Biospeleological Society,. 75-75 (poster)
- Hamidović, D.; Desnica, Sonja. (2015): Međunarodno važna podzemna skloništa za šišmiše u Hrvatskoj - primjena u očuvanju i zaštiti ZBORNİK SAŽETAKA 12. HRVATSKOG BIOLOŠKOG KONGRESA, Klobučar, G., Kopjar, N., Gligora Udovič M., Lukša, Ž, Jelić D (ur.). Zagreb : Hrvatsko biološko društvo, :10-11 / Internationally important underground sites for bats - conservation and protection application, 12th CROATIAN BIOLOGICAL CONGRESS with International Participation, Sveti Martin na Muri, 18. – 23. IX 2015, BOOK OF ABSTRACTS, Croatian Biological Society 1885: 10-11- (oral presentation)
- Hamidović, D.; Lindić, V.; Krstinić, P. (2015): Kada i da li ljudi i šišmiši mogu dijeliti isto sklonište? ZBORNİK SAŽETAKA 12. HRVATSKOG BIOLOŠKOG KONGRESA, Klobučar, G., Kopjar, N., Gligora Udovič M., Lukša, Ž, Jelić D (ur.). Zagreb : Hrvatsko biološko društvo 1885, :24-25 / Internationally important underground sites for bats - conservation and protection application, 12th CROATIAN BIOLOGICAL CONGRESS with International Participation, Sveti Martin na Muri, 18. – 23. IX 2015, BOOK OF ABSTRACTS, Croatian Biological Society 1885: 24-25 (oral presentation)
- Hamidović, D.; Žvorc, P.; Zrnčić, V.; Krstinić, P. (2014): *Myotis daubentonii* and *M. capaccinii* recorded on the Krk island, Croatia, XIII EUROPEAN BAT RESEARCH SYMPOSIUM - Book of Abstracts, September 01-05, 2014, Šibenik, Croatia / Peter H.C., Lina ; Hutson, Anthony M. (eds.). Zagreb : Croatian Biospeleological Society: 76-76 (poster)
- Zrnčić, V.; Pušić, A.; Hamidović, D.. (2014): New bat species records for the Dinara mountain range, Croatia,

- XIII EUROPEAN BAT RESEARCH SYMPOSIUM - Book of Abstracts, September 01-05, 2014, Šibenik, Croatia, Peter H.C., Lina ; Hutson, Anthony M. (eds.). Zagreb : Croatian Biospeleological Society.: 174-174 (poster)
- Rnjak, G., Zrnčić, V., Rnjak, D. (2015): Speleološka istraživanja u zaleđu Šibenika / Speleological research in the hinterland of Šibenik, Subterranea Croatica 19: 30-39.
  - Rnjak, D., Rnjak, G., Zrnčić, V. (2016): Istraživanje faune šišmiša na području općina Šibenik, Unešić i Drniš, 2013. - 2014. (Hrvatska) / Bat fauna research in Šibenik, Unešić and Drniš municipalities 2013 - 2014 (Croatia), Hypsugo 1, 2: 9-24.
  - Rnjak, D., Rnjak, G., Zrnčić, V. (2017): Istraživanje faune šišmiša jugoistočnog dijela Istre (Hrvatska) 2013. godine / Bat fauna research in the south-eastern part of Istria (Croatia) in 2013, Hypsugo 2(1): 1-16.
  - Zrnčić, V. (2017): Checklist of Bat Ectoparasites in Croatia. Poster presentation. 14th European Bat Research Symposium, San Sebastian (Donostia), Basque Country. Book of Abstract.
  - Aizpura O., Budinski I., Georgiakakis P., Gopalakrishnan S., Ibaney C., Mata V., Rebelo H., Russo D., Szodoray-Paradi F., Zhelyazkova V., Zrnčić V., Gilbert M.T.P., Alberdi A. (2017): Agriculture shapes the trophic niche of a bat preying on multiple pest arthropods across Europe: Evidence from DNA metabarcoding, Molecular Ecology, 2018; 1-11
  - Josić D. (June 2018 – ongoing): Research on *Myotis nattereri* roosting ecology in Croatia as a part of the project " The role of biogeography, reproductive isolation and ecological divergence in the evolution of a highly diverse group of bats, project leader: Dr. Frieder Mayer, Museum für Naturkunde Berlin - Leibniz Institute für Evolutions und Biodiversitätsforschung, Berlin, Germany.
  - Mazija M. (2015): Expert Assessment on possible impacts of reconstruction activities as part of the EU financed project „Revitalisation of an old narrow-gauge railway Čiro from Zvekovica to Glavska in Konavle“ on bat fauna in tunnels near Mihanići
  - Mazija M., Rnjak D. (2016): Survey results of selected bat roost sites in Popovo polje within the Ravno municipality (Bosnia and Herzegovina), Hypsugo - Glasnik za istraživanje šišmiša Balkana (1), pp 20-29.
  - Mazija M., Domazetović Z., Benčina B., Drdar Ž. (2015): Bats on Brijuni - residential elite or mass tourism? Book of abstracts (12th Croatian Biological Congress), Sveti Martin na Muri (Croatia), Association for Bat Conservation Tragus
  - Mazija M., Renje S. Domazetović Z. (2017): Monitoring of bats on selected localities in Nature Park Žumberak – Samoborsko gorje, Association for Bat Conservation Tragus
  - Mazija M, Domazetović Z., Benčina B. Drdar Ž. (2014-2016): Bat research during European Bat night in National Park Brijuni, Association for Bat Conservation Tragus
  - Mazija M., Zrnčić V., Rnjak D., Kipson M., Žvorc P., Josić D., Rnjak G., Hanžek N., Renje S., (2016): Final report for Chiroptera group. IN: Mrakovčić M., Mustafić P., Jelić D., Mikulić K., Mazija M., Maguire I., Šašić Kljajo M., Kotarac M., Popijač A., Kučinić M., Mesić Z. (ur.) EU Natura 2000 Integration Project (NIP) - Field research and laboratory processing for collecting new inventory data for taxonomic groups: Actinopterygii and Cephalaspidomorphi, Amphibia and Reptilia, Aves, Chiroptera, Decapoda, Lepidoptera, Odonata, Plecoptera, Trichoptera. OIKON-HID-HYLA-NATURA-BIOM-CKFF-GEONATURA-HPM-TRAGUS, Zagreb: 117-145.
  - Mazija M. (2016): Bat research in four protected areas (also Natura 2000 sites) in Brodsko-posavska County
  - Mazija M. (2015): Assessing the impact of the test mining on exploitation field of the quarry Gradusa on the bat fauna in the Gradusa cave as a part of Natura 2000 site
  - Mazija M. (2015): Bat research in Strahinjščica and Ivanščica area in Krapinsko-zagorska County Financier: Public Institution for management of protected natural values in Krapinsko - zagorska County
  - Mazija M, Domazetović Z. (2014): Monitoring of the forest bat species on selected sites in Nature Park Medvednica, Association for Bat Conservation Tragus
  - Marina Kipson, Martin Šálek, Radek Lučan, Tomaš Bartonička, Edita Mikova, Marcel Uhrin, Helena Jahelkova, Ana Pušić, Dina Kovač, Marija Majer, Ivan Horaček (2014): The curious case of Savi's pipistrelle, *Hypsugo savii*: new insight on roosting ecology and behaviour from the Mediterranean region. Book of Abstracts, XIIIth European Bat Research Symposium, September 01- 05, 2014 Šibenik, Croatia / Lina, Peter H.C., Hutson, Anthony M. (eds.). Zagreb : Croatian Biospeleological Society
  - D. Hamidović, P. Žvorc, V. Zrnčić, P. Krstinić (2014): *Myotis daubentoni* and *M. capaccinii* recorded on Krk island, Croatia. Book of Abstracts, XIIIth European Bat Research Symposium, September 01- 05, 2014 Šibenik, Croatia / Lina, Peter H.C., Hutson, Anthony M. (eds.). Zagreb : Croatian Biospeleological Society
  - Hamidović D., Žvorc P., Crnčević M., Rnjak D. (2017): Bat fauna of Lokrum island special forest reserve, Croatia, 14th European Bat Research Symposium - EBR 2017 Book of Abstracts (ed. Hutson A.M. Lina P. H.C.), Donostia, The Basque Country, 1-5 August 2017, Croatian Biospeleological Society: 106.
  - Lina, P.H.C., Hutson, A.M., Kipson, M., Zrnčić, V., Hamidović, D. (Ed.) 2014: Book of abstracts – XIIIth European Bat Research Symposium, September 01-05, 2014. Šibenik, Croatia. Croatian Biospeleological Society, HINUS Ltd. Zagreb. 1-188.
  - Bedek, J., Bregović, P., Bilandžija, H., Dražina, T., Hamidović, D., Jalžić, B., Komerički, A., Lukić, M., Ozimec, R., Pavlek, M., Slapnik, R. & P. Žvorc, 2017: Zagonetna fauna dubokih jama Nacionalnog parka Sjeverni Velebit. Javna ustanova Nacionalni park Sjeverni Velebit / A mysterious fauna in the deep caves of the Northern Velebit National Park. Public Institution National Park Northern Velebit.
  - Žvorc P. (2018): Research and determination of the location of maternity colony of *Plecotus kolombatovici* in the Monastery in international collaboration with Vincent Wildlife Trust.
  - Fressel N. (2015): Preliminary research of bat fauna for proposal of long term monitoring of bats in the monument of park architecture Vrbaničev prijevój in Karlovac.

- Josić D. - Investigating the value and significance of the ponds on the island of Krk through bat fauna (Chiroptera) research within the project "LOKNA"
- Biology Students Association BIUS, Bat Group (2014): Bat fauna research project Grabovača 2014
- Biology Students Association BIUS, Bat Group (2015): Bat fauna research project Papuk 2015
- Biology Students Association BIUS, Bat Group (2016): Bat fauna research project Mura – Drava 2016
- Biology Students Association BIUS, Bat Group (2017): Bat fauna research project Insula Tilagus 2017
- Biology Students Association BIUS, Bat Group (2018): Bat fauna research project Forest Žutica 2018
- Green Infrastructure Ltd (2017): Monitoring šišmiša na području Šibensko-kninske županije (travanj 2016. - veljača 2017.) / Bat fauna monitoring in Šibenik-Knin County (April 2016 - February 2017)
- Geonatura Ltd. (2017): Istraživanje šišmiša u špilji Golubinka 2017. godine / Bat fauna survey in Golubinka cave in 2017
- Geonatura Ltd. (2017): Izrada stručnih podloga za izradu studije utjecaja na okoliš s Glavnom ocjenom prihvatljivosti zahvata za ekološku mrežu mHE Konavle – istraživanje šišmiša i speleoloških objekata u ljetnom periodu / Baseline study of bats and caves in summer period for the need of environment and nature impact assessment for small hydro power plant (HPP) Konavle, Croatia
- Geonatura Ltd. (2016): Istraživanje šišmiša na području planirane SE Hrvace / Bat fauna research in the area of planned solar power plant Hrvace
- Geonatura Ltd. (2012 – 2014): Provedba cjelogodišnjeg monitoringa šišmiša i ptica i izrada Elaborata prethodne ocjene prihvatljivosti zahvata za ekološku mrežu za vjetroelektranu Goli / Implementation of one-year bird and bat monitoring and preparation of Nature impact assessment screening for WF Goli
- Geonatura Ltd. (2012 – 2014): Provedba cjelogodišnjeg monitoringa šišmiša i ptica i izrada Elaborata prethodne ocjene prihvatljivosti zahvata za ekološku mrežu za vjetroelektranu Ripenda / Implementation of one-year bird and bat monitoring and preparation of Nature impact assessment screening for WF Goli

# Confirmation

## Confirmation of information verification and approval for submission

### Please confirm:

In addition a scanned copy of an official letter from the relevant state institution, approving the report for submission, can be attached.

I declare that the information provided in the Report on the implementation of EUROBATS has been verified and the report has been approved for submission by the appropriate state institution in the country.

### Date of submission

Fill as follows: dd.mm.yyyy

> 27.09.2018.

You have attached the following documents to this answer.

[EUROBATS-confirmation\\_of\\_the\\_National\\_Report.pdf](#)