

Bachelorarbeit

Winterliches Schwärmverhalten von Fledermäusen an ausgewählten
Quartieren in Landshut

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am 16.02.2024



Was machen Fledermäuse im Winter?

- Winterschlaf?
- Jagd/Schwärmen?
- Beides?

→ Kontext von Spezies und Klima wichtig!

Viele Fledermäuse sind im Winter aktiv!

- Wann genau im Winter?
 - Zu welchem Ausmaß?
 - (Warum?)
 - Welchen Einfluss spielt Temperatur/Witterung?
 - Gibt es einen Unterschied zwischen Gattungen?
- Größere Datenmenge = höherer Wissensstand

Kontext der Arbeit

- Forschungsfrage: Zu welchem Ausmaß Schwärmen Fledermäuse (speziell die Gattungen Nyc. und Pip.) in der Stadt Landshut?
 - Gebiet: möglichst große Teile der Stadt
 - Zeitraum: Ganzer Winter (2022/23)
 - Begehungen: So Viele wie logistisch möglich
 - Ziel: Möglichst große Datenmenge (Rufe + Quartiere)

Geräte:



Batlogger M (Elekon)



Mini-Batcorder (EcoObs)

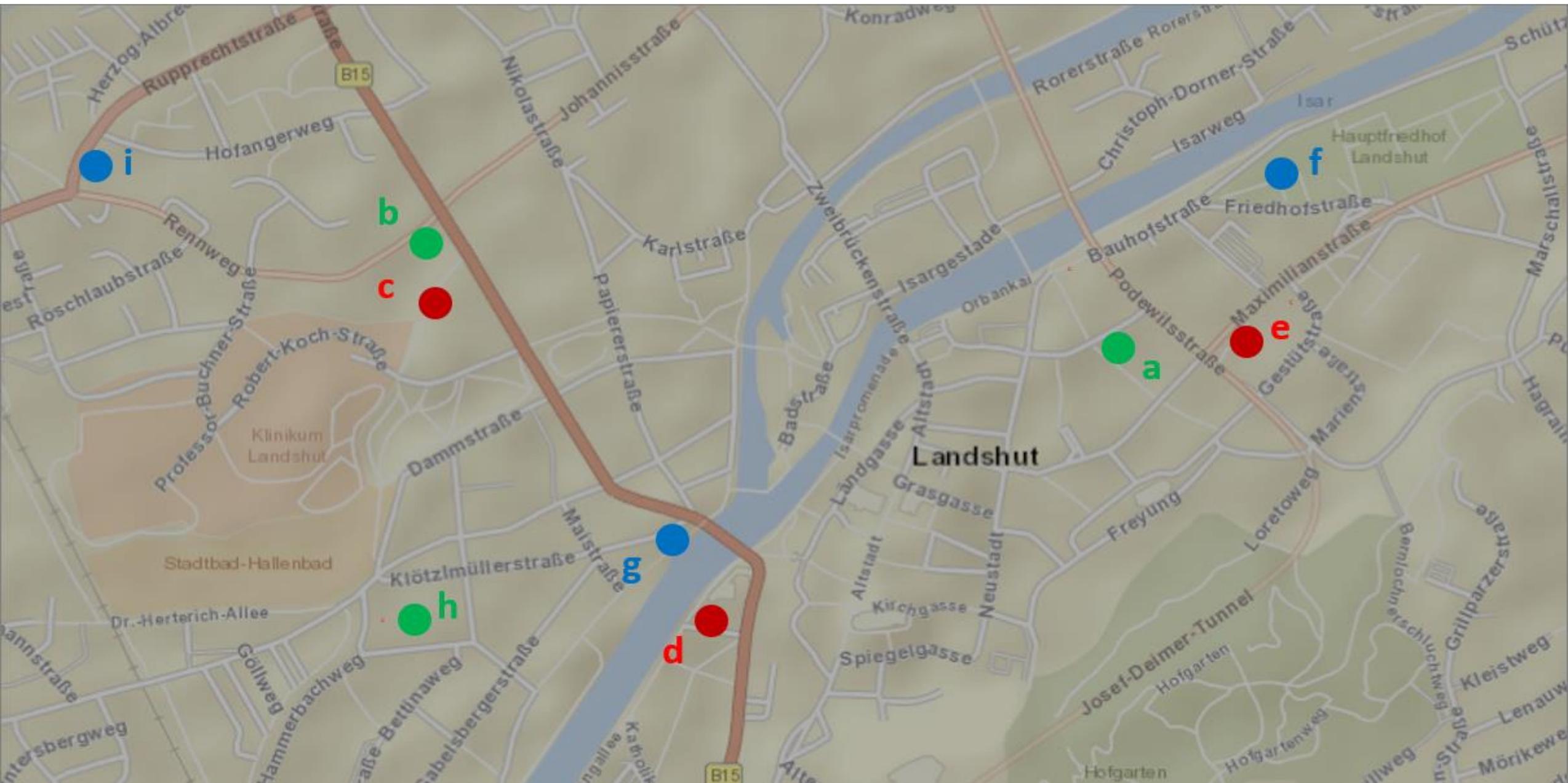


Echometer Touch 2
(Wildlife Acoustics)



Keiler 35 Pro (Liemke)

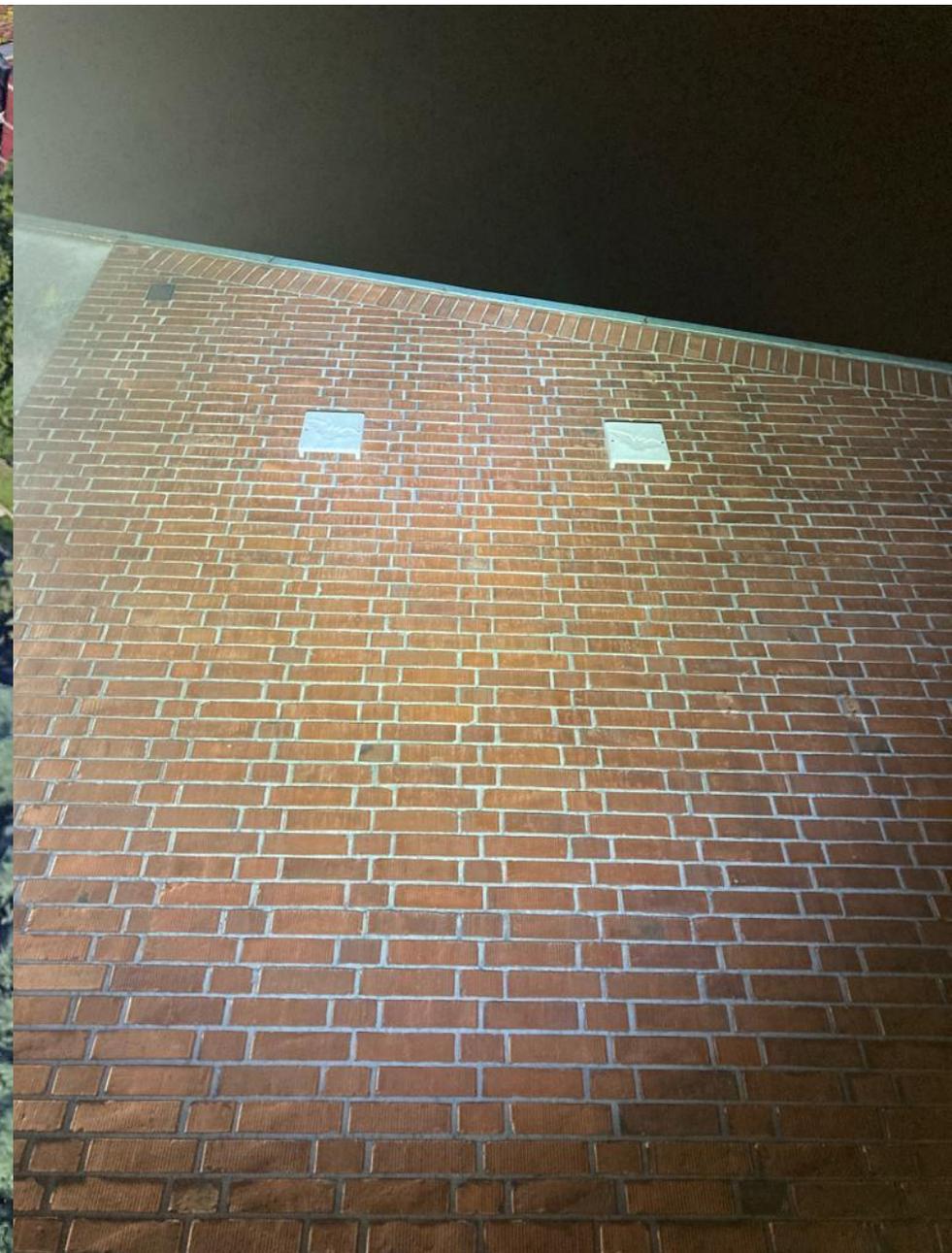
Quartiere



Deutsche Rentenversicherung Landshut



Rathaus Landshut



Auswertung mit BatExplorer (Elekon)

The screenshot displays the BatExplorer software interface. At the top, there is a menu bar (File, Edit, View, Tools, Project, Help) and a toolbar with various icons. A yellow notification bar at the top right states: "A new BatExplorer version v2.2.8725.27501 was released. Currently installed is v2.2.8699.20718. Download now... Remind me later".

The main window is titled "Project 3 - BatExplorer" and contains the following sections:

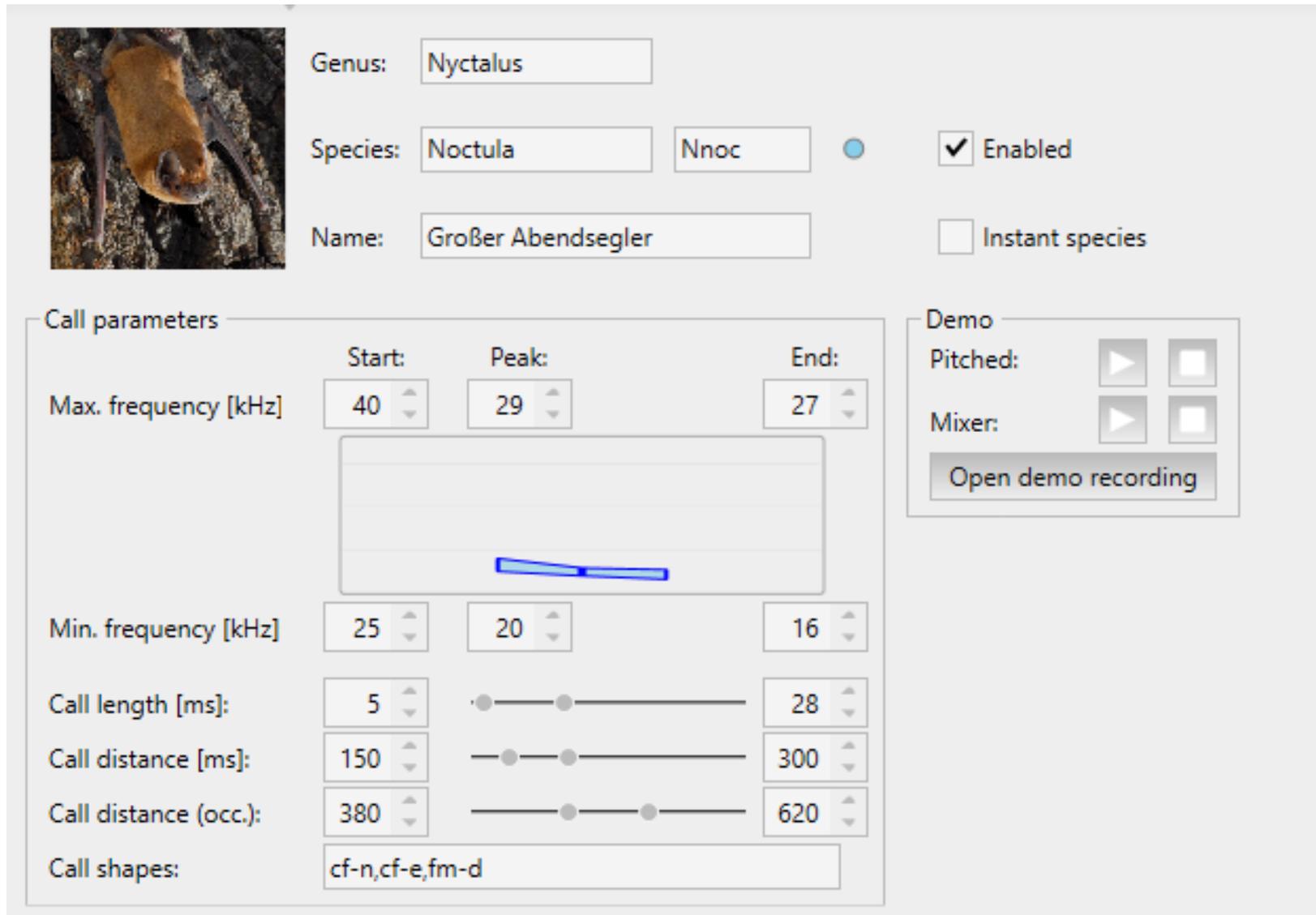
- Project Info: Project 3**
 - Project: Project 3
 - Created: 07.01.2024 19:45:03
 - Path: C:\Users\lukas\Desktop\LMU\Bachelorarbeit\Bat\Project 3\Project 3.bpr
 - # Recordings: 4338
 - # Calls: 30130
 - Tot. length: 19333,2 s
 - Notes: [Empty text box]
- Filter recordings...** [Icon]
- Recording List**

Recording	Recorded	Calls / Spectrogram
23710001 Location: - Length: 6,88 s Rec quality: 1,0 % Calls: 0 Peak Freq: n/a Species: ● Unbekannt/Interferenz Suggest Species...	09.11.2022 17:54:27	[Spectrogram]
23710001 Location: - Length: 1,57 s Rec quality: 1,0 % Calls: 0 Peak Freq: n/a Species: ● Unbekannt/Interferenz Suggest Species...	15.11.2022 19:14:52	[Spectrogram]
23710001 Location: - Length: 2,10 s Rec quality: 2,1 % Calls: 1 — øLength: 5,2 ms, øDistance: 0 ms, cf-e(1) Peak Freq: 24,4 kHz Species: ● Nyctaloide Suggest Species...	23.11.2022 18:13:26	[Spectrogram]
- Calls (30130)**

Recording	#	Spe	Lengt	Max F	Min F	Peak F	Intensi	Shape	Sugg. Species 1st	Sugg. Species 2nd	BW P2M [kHz]
23710184	8:	1	11,8	25,0	18,3	23,2	1,1	cf-n	Vespertilio murinus (98%)	Nyctalus noctula (90%)	4,9
23710189	1:	1	11,8	34,8	18,3	22,9	1,4	cf-n	Vespertilio murinus (98%)	Nyctalus noctula (90%)	4,6
23710077	1	1	9,2	23,5	18,9	23,2	-29,3	cf-n	Vespertilio murinus (95%)	Nyctalus noctula (90%)	4,3
23710064	4:	1	16,4	44,8	20,7	25,3	0,2	cf-n	Vespertilio murinus (93%)	Plecotus kolombatovici (68%)	4,6
23710052	1:	1	21,0	43,0	18,6	24,4	-8,7	cf-n	Vespertilio murinus (93%)	Nyctalus noctula (91%)	5,8
23710195	2:	1	15,1	36,6	19,2	23,5	-1,6	cf-n	Vespertilio murinus (88%)	Nyctalus noctula (87%)	4,3
23710031	1	1	17,0	26,5	18,3	25,3	-18,0	cf-n	Vespertilio murinus (88%)	Nyctalus noctula (87%)	7,0
23710096_4	1	1	15,7	24,1	21,0	22,3	-19,7	cf-n	Vespertilio murinus (87%)	Nyctalus noctula (81%)	1,2
- Statistics**
 - Activity
 - Frequencies
 - Frequencies/Time
 - Species

The graph shows Temperature [°C] on the left y-axis (ranging from 6 to 23) and Calls [#] on the right y-axis (ranging from 60 to 160). The x-axis represents time. The temperature is shown as a blue line, and calls are represented by vertical orange bars.

Auswertung mit BatExplorer (Elekon)



The screenshot displays the BatExplorer software interface for configuring call parameters. On the left, there is a small image of a brown bat. The main configuration area includes the following fields:

- Genus:** Nyctalus
- Species:** Noctula (selected), Nnoc (radio button selected), and an Enabled checkbox.
- Name:** Großer Abendsegler, with an Instant species checkbox.

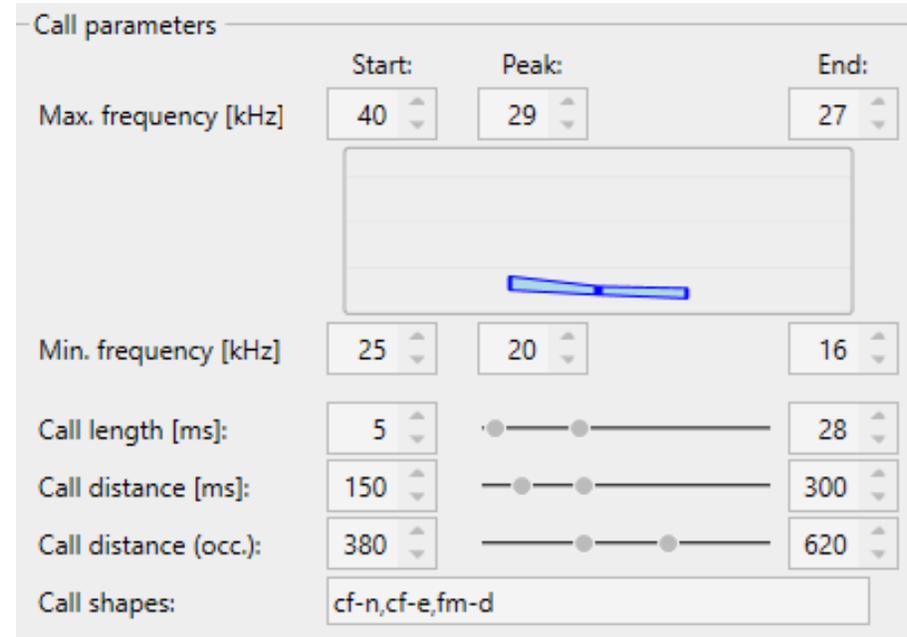
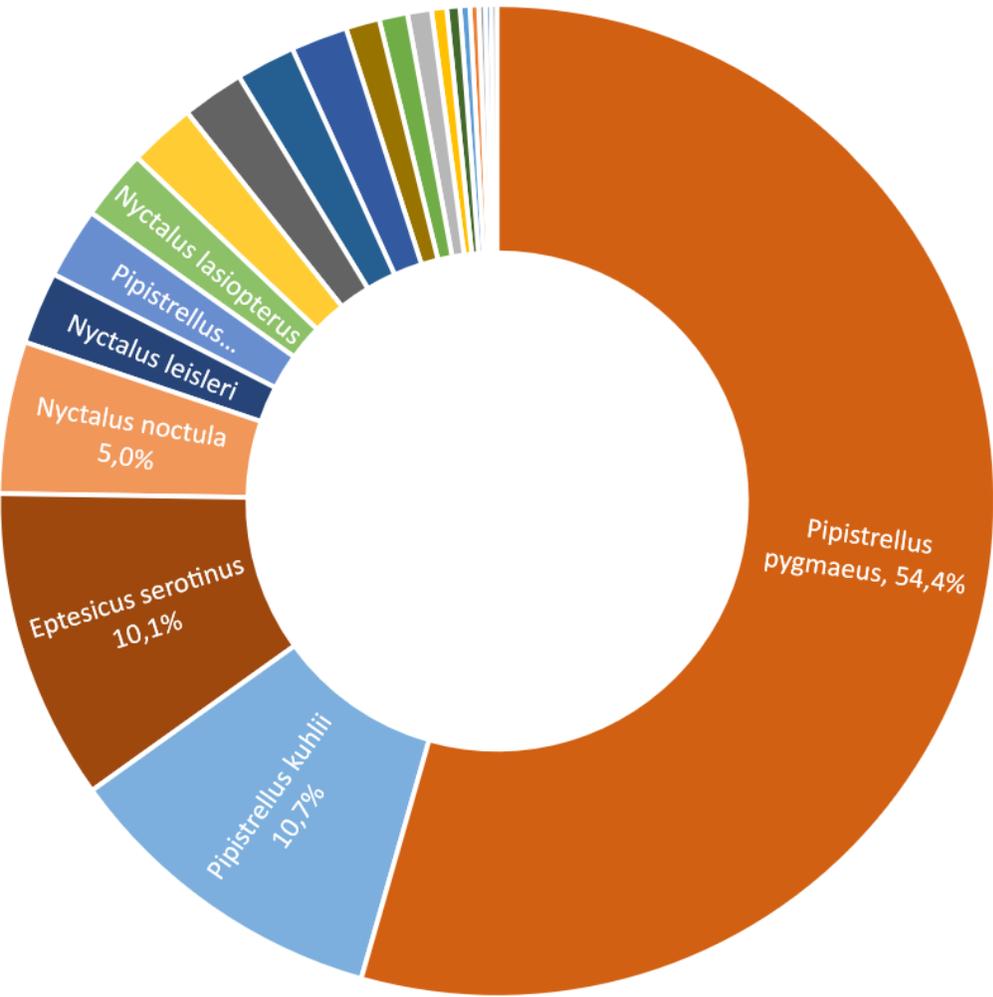
The **Call parameters** section contains:

- Max. frequency [kHz]:** Start: 40, Peak: 29, End: 27. Below these is a frequency plot showing a blue trapezoidal call shape.
- Min. frequency [kHz]:** 25, 20, 16.
- Call length [ms]:** 5, a slider, 28.
- Call distance [ms]:** 150, a slider, 300.
- Call distance (occ.):** 380, a slider, 620.
- Call shapes:** cf-n,cf-e,fm-d

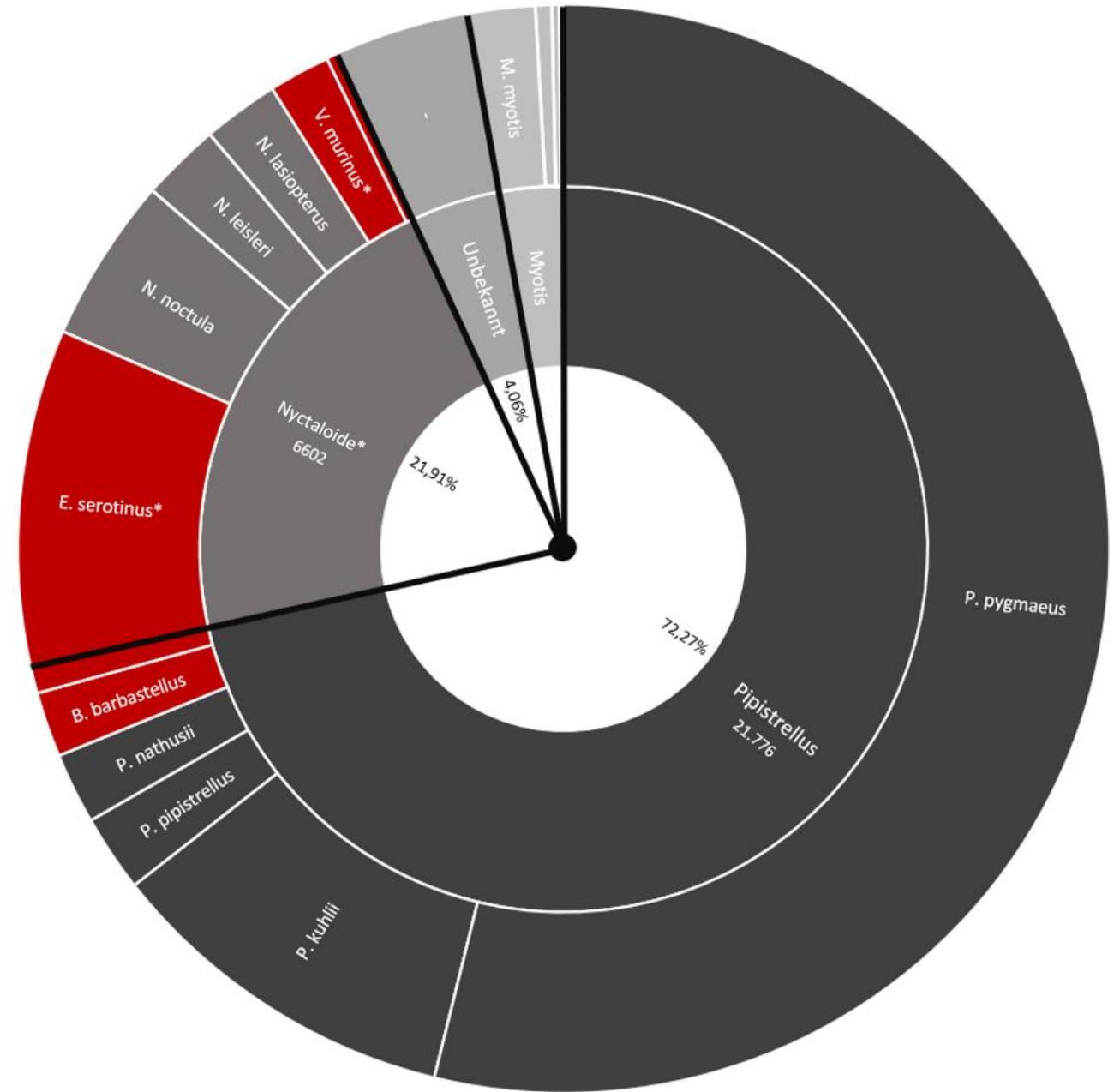
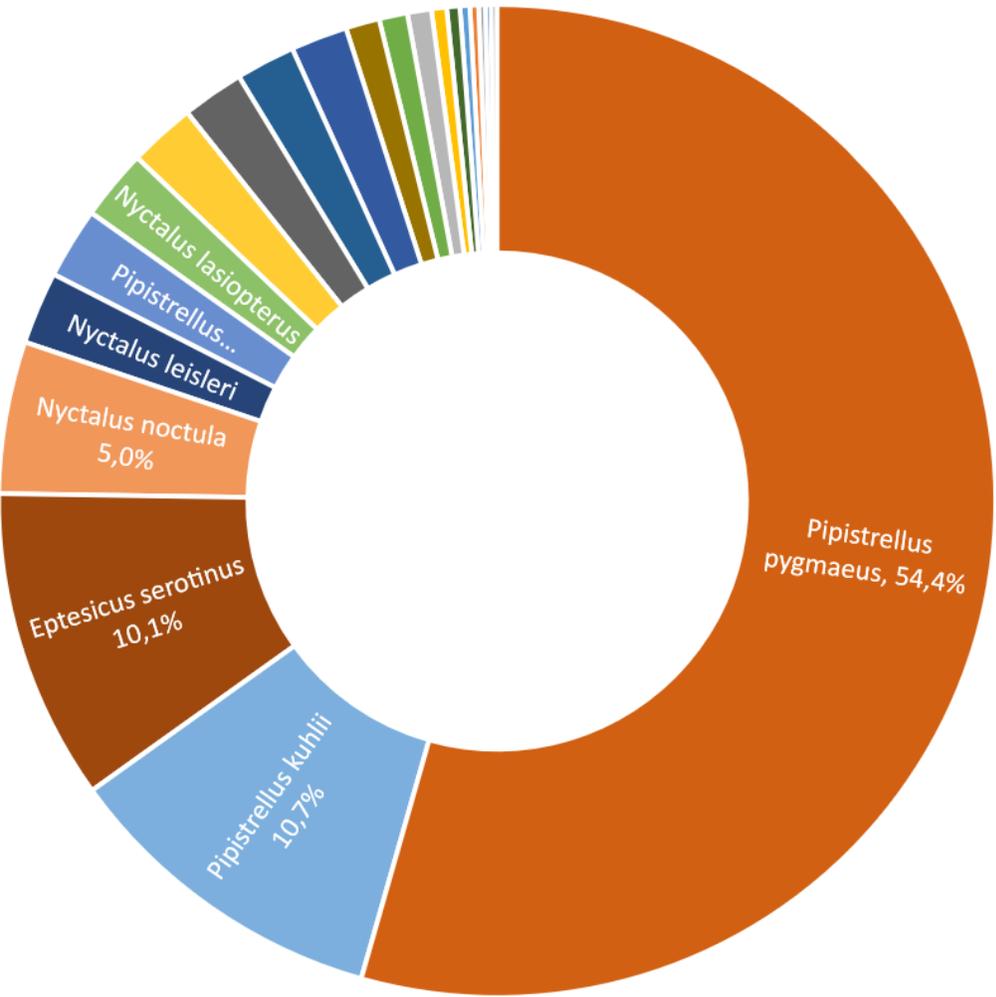
The **Demo** section on the right includes:

- Pitched:** Play and Stop buttons.
- Mixer:** Play and Stop buttons.
- Open demo recording** button.

Artauswertung

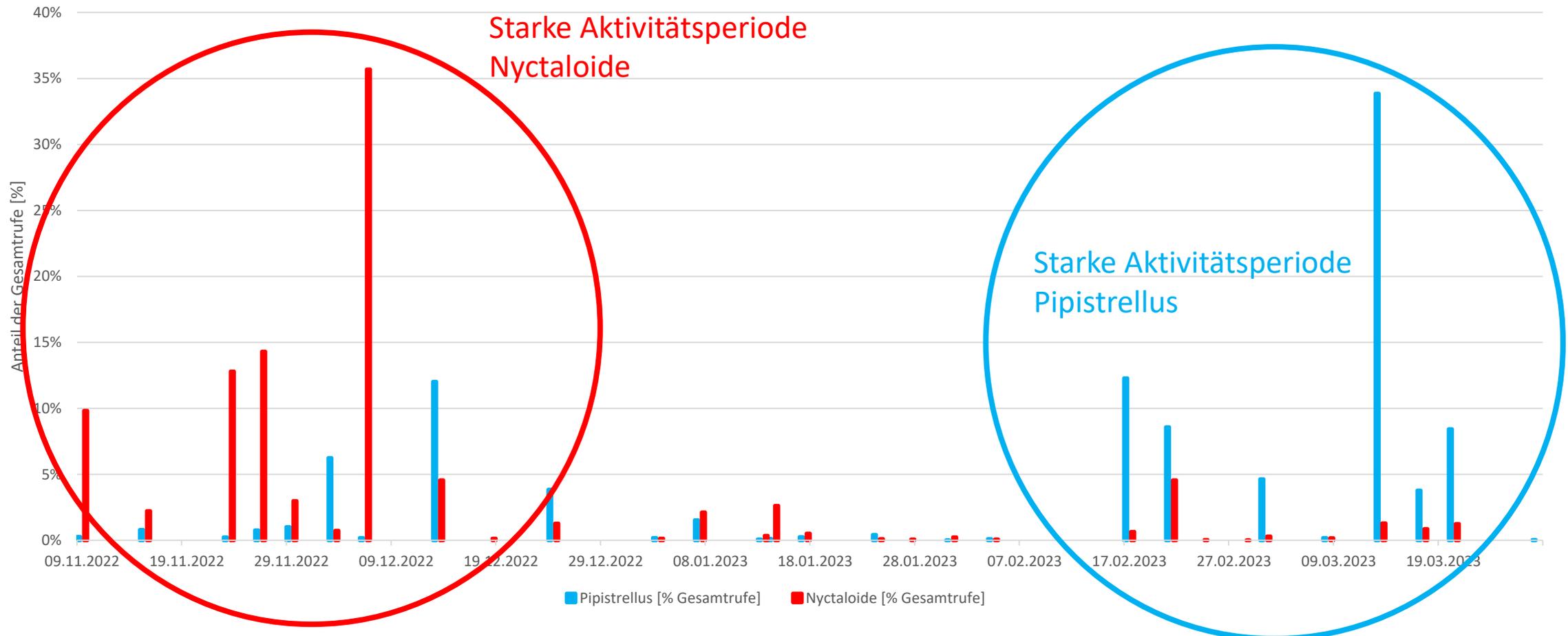


Artauswertung

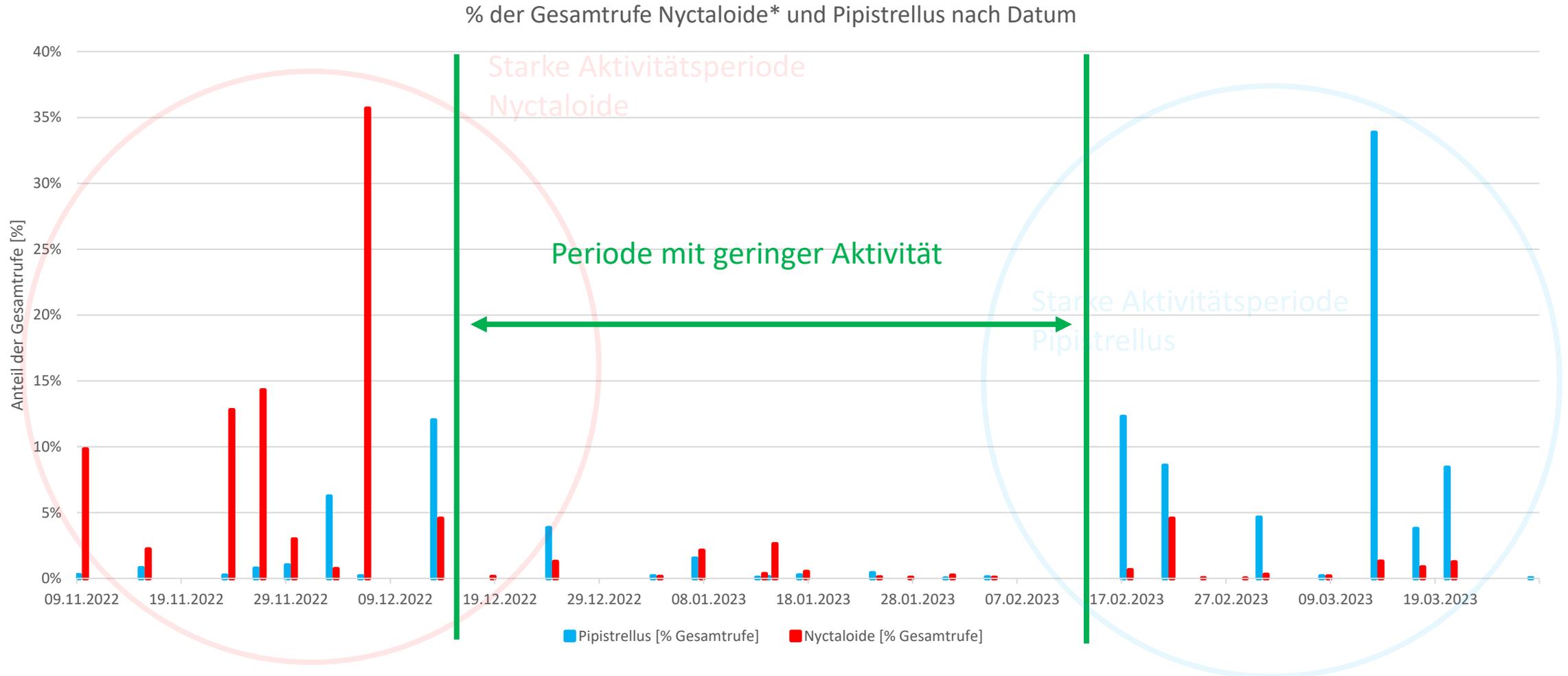


Aktivitätsauswertung (Nyctalus/Pipistrellus)

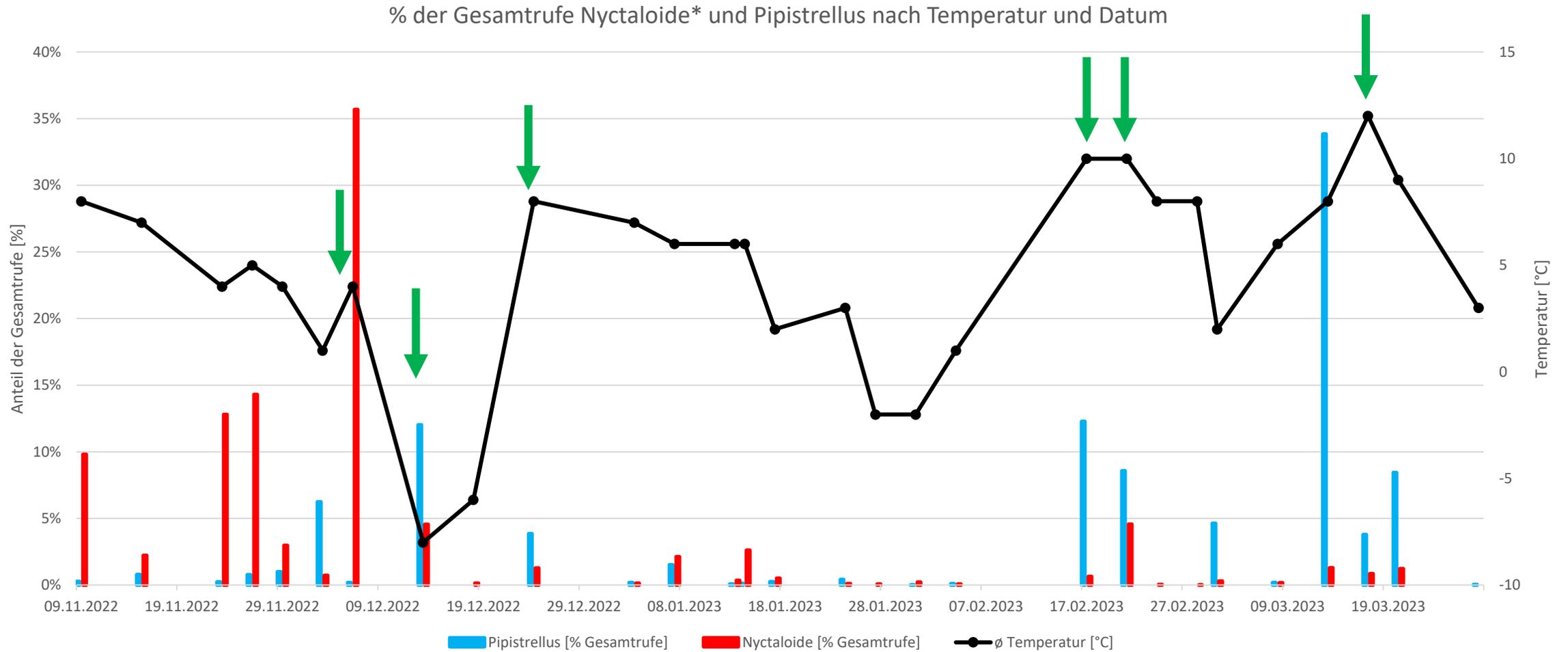
% der Gesamtrufe Nyctaloide* und Pipistrellus nach Datum



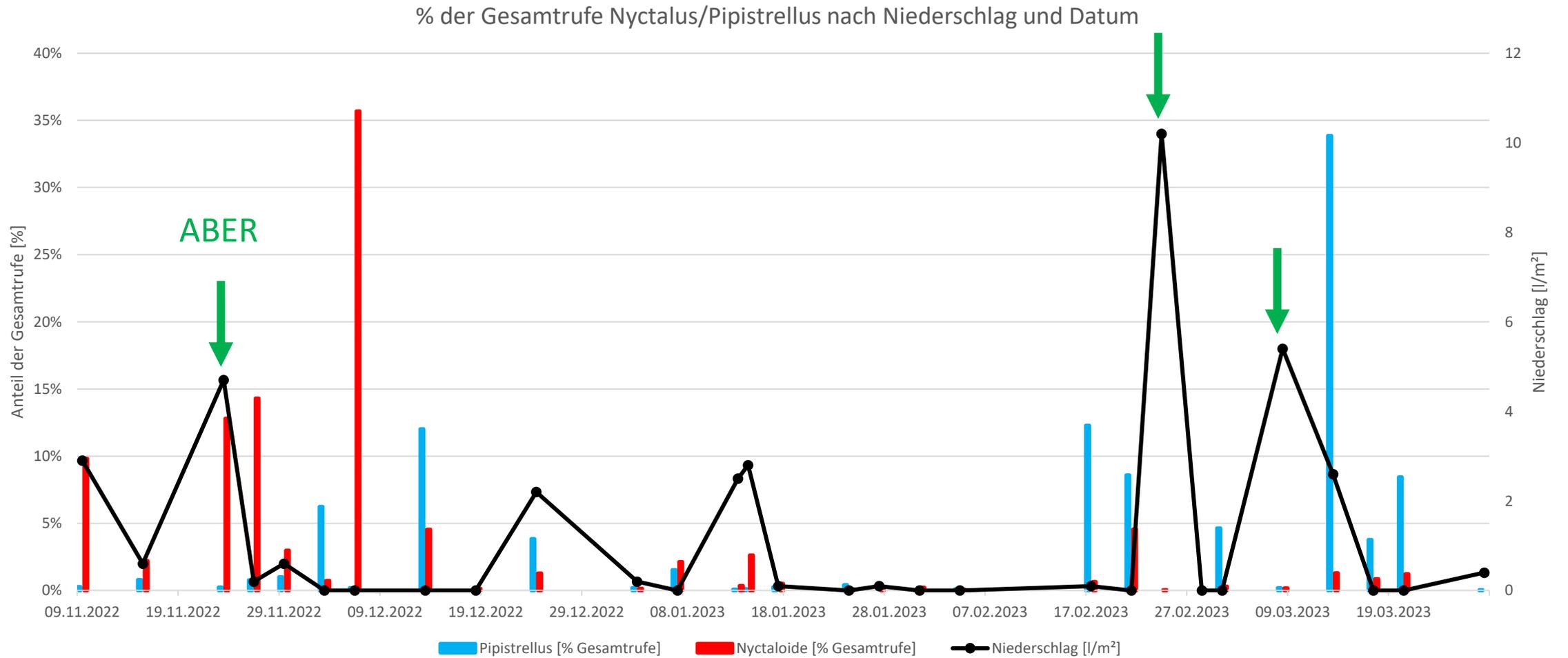
Aktivitätsauswertung (Nyctalus/Pipistrellus)



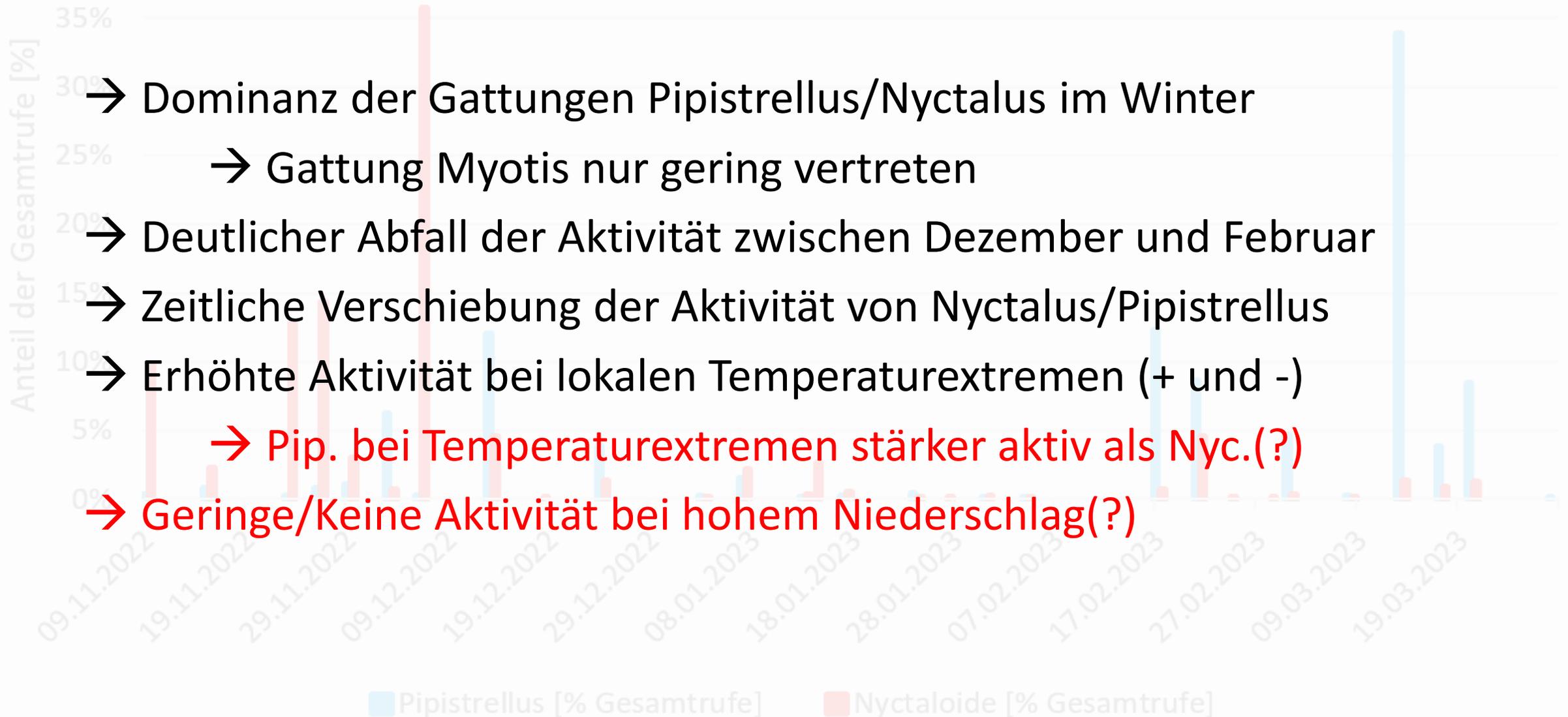
Aktivitätsauswertung (Nyctalus/Pipistrellus)



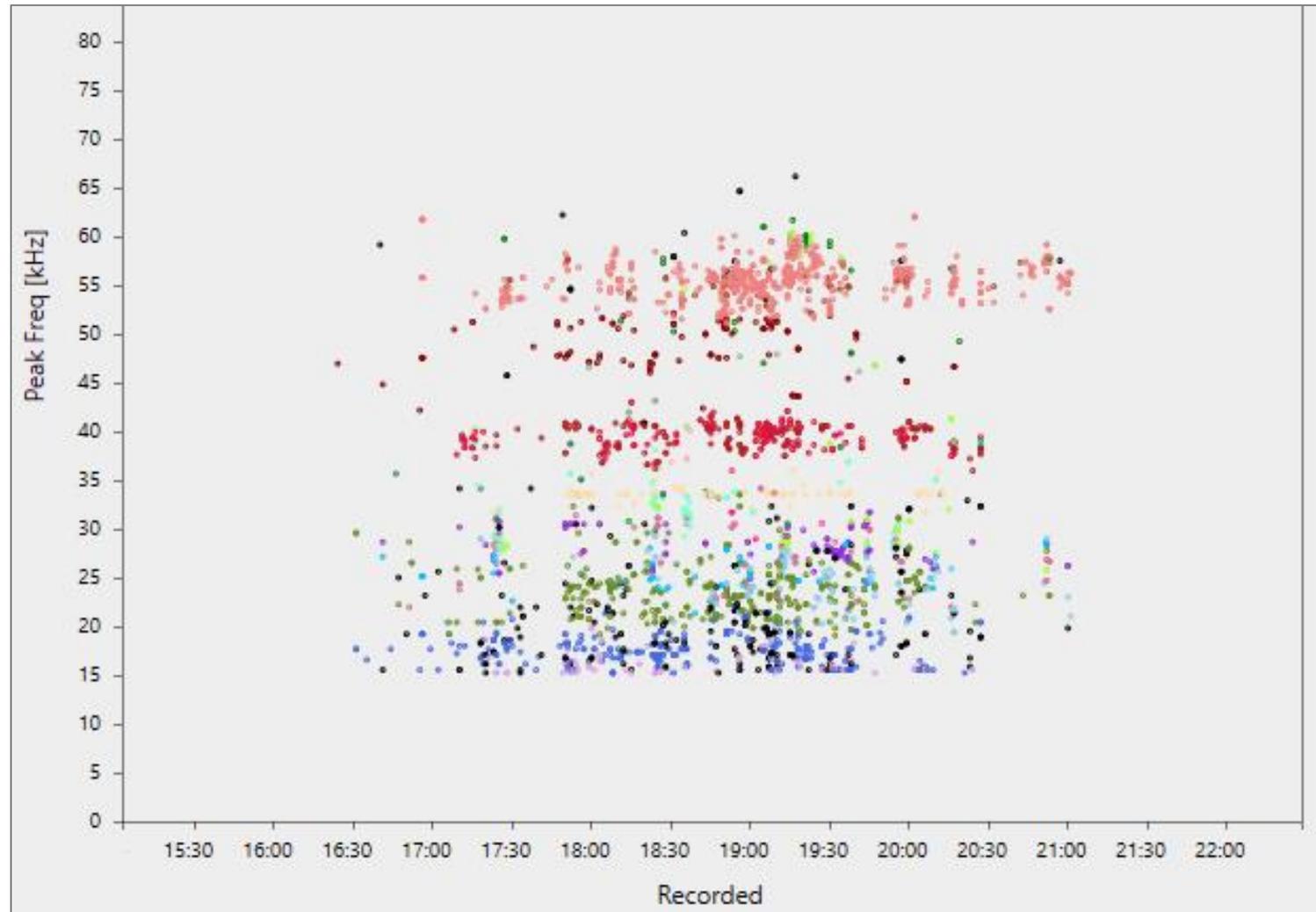
Aktivitätsauswertung (Nyctalus/Pipistrellus)



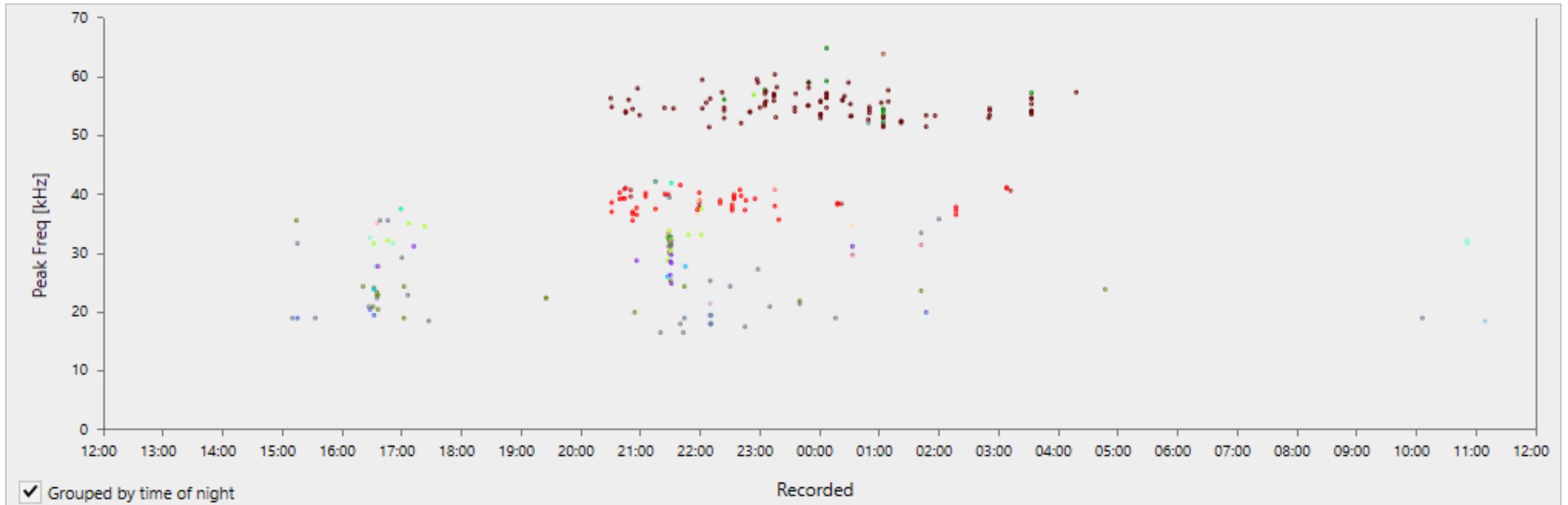
Wichtigste Erkenntnisse



Weitere Erkenntnisse



Weitere Erkenntnisse







03.12.2022 19:18
8.2GB Free #34
Recording... 5

BATLOGGER

Vielen Dank für ihre Aufmerksamkeit!

