

Mass pipistrelle hibernation sites



UK Bat Steering Group

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10th July 2023

Pipistrelles in winter

- Where do pipistrelles go in winter?
- Pipistrelle hibernation sites are under recorded
- Looking in wrong places....



Hibernating pipistrelles

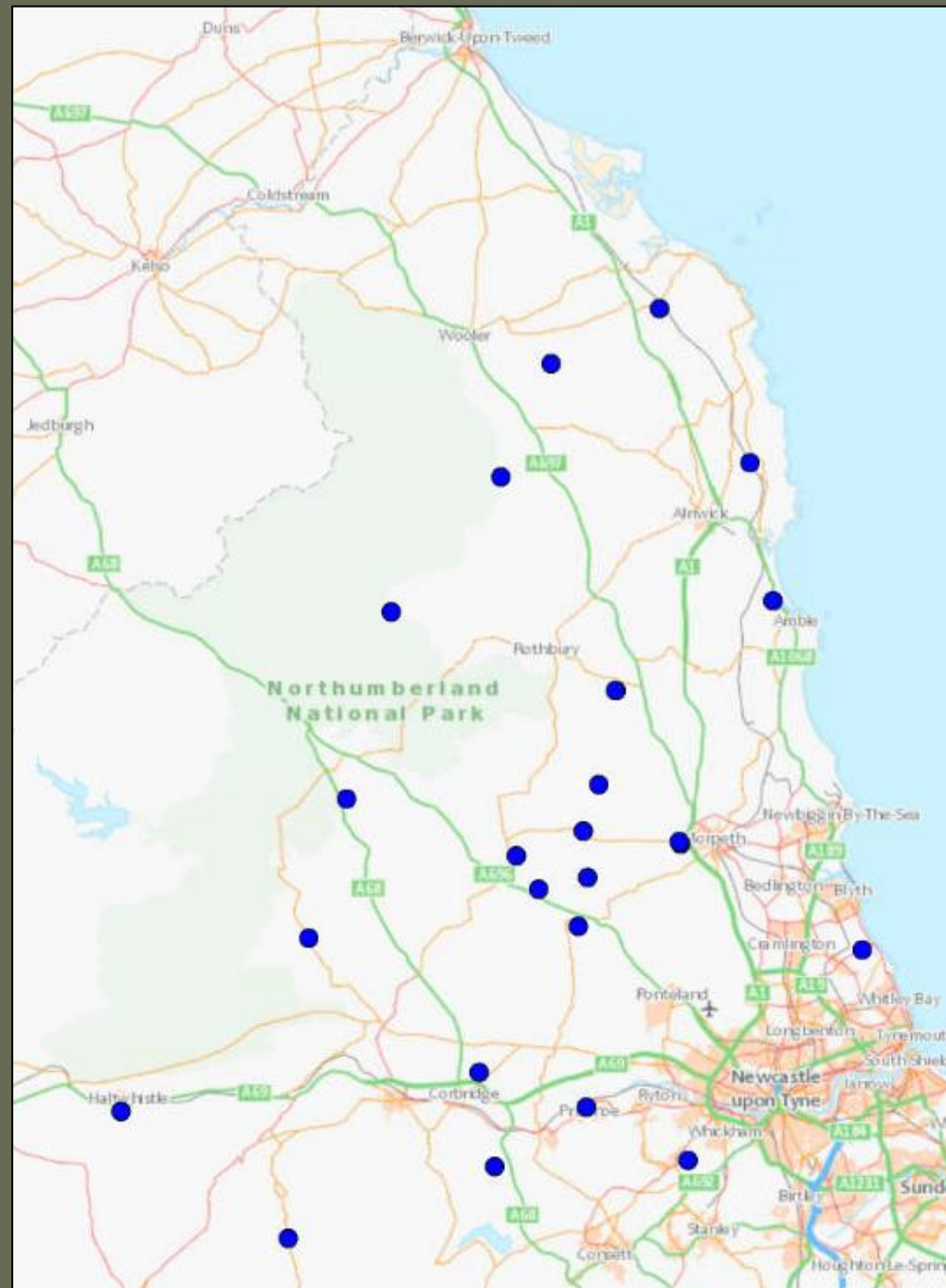
- 25 sites found in Northumberland
 - Most sites low numbers of bats, 1-10
- Above ground structures
 - 24 buildings, 1 rock formation



Hibernating pipistrelles

- 25 sites found in Northumberland
 - 1-70 pipistrelles counted
- Above ground structures
 - 24 buildings, 1 rock formation





Hibernating pipistrelles

- Seaton Delaval Hall
- Largest known pipistrelle hibernaculum
 - Maximum count 70 pipistrelles January 2023
 - 76 roost locations found, so far



Hibernating pipistrelles

- Three hibernacula, minimum counts 42+
- Two castles and a church
- Challenging sites



Finding pipistrelles

- Between stone and wood



Finding pipistrelles

- Between stone and wood



Finding pipistrelles

- Between stone and wood



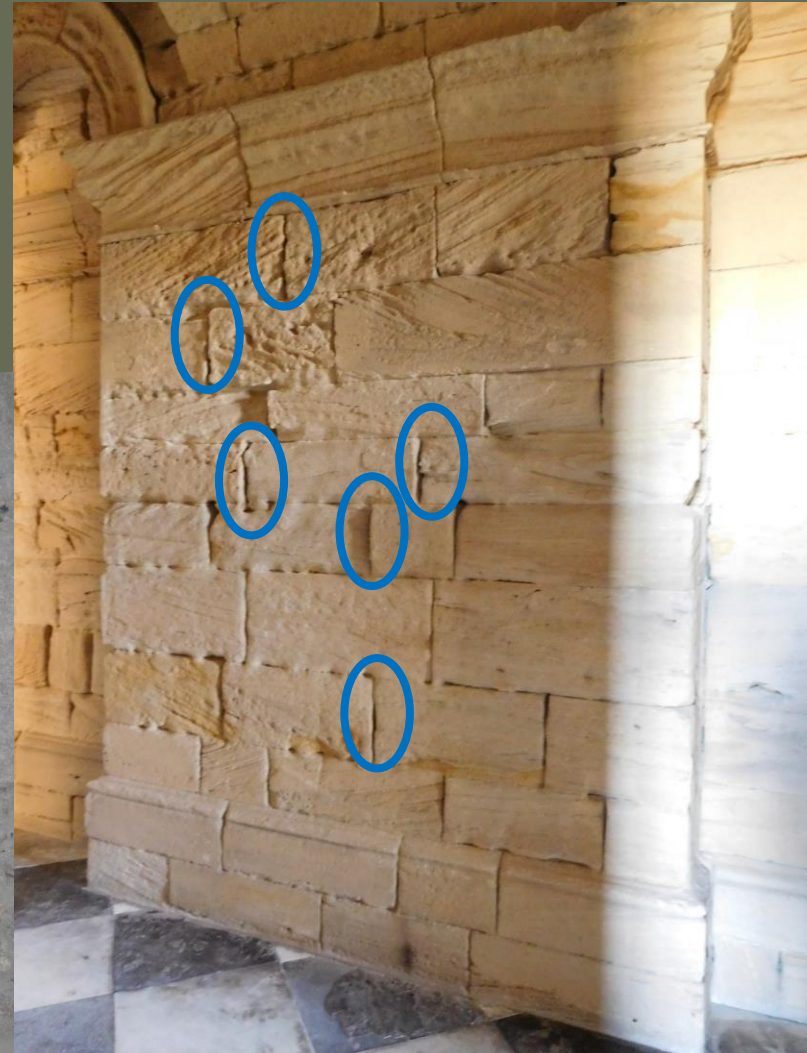
Finding pipistrelles

- Between stone and stone



Finding pipistrelles

- Between stone and stone
- Height



Finding pipistrelles

- Between stone and stone

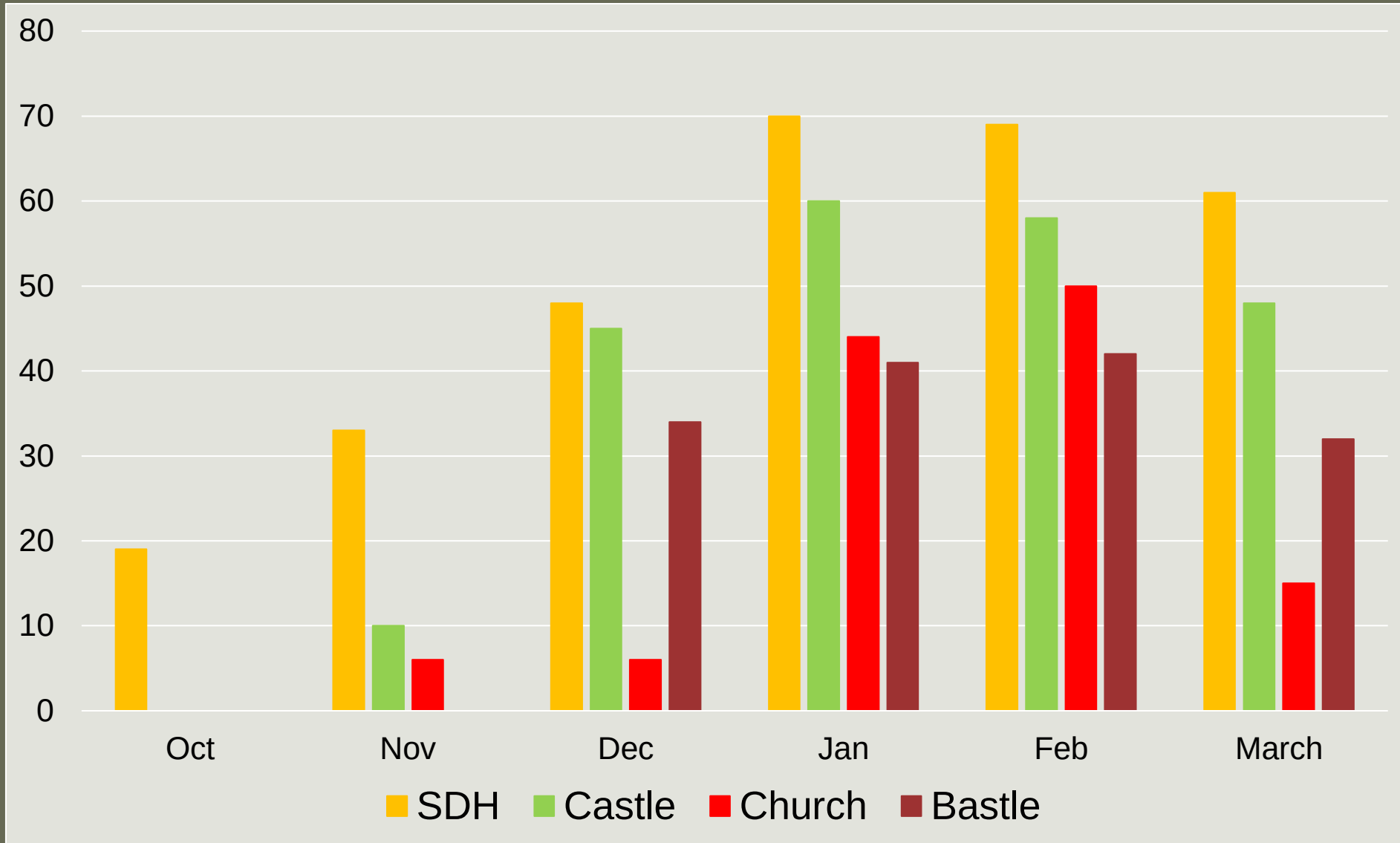


Counting pipistrelles

- Counted Oct to March
- Church since 2013
- Bastle, Feb 2021



Counting pipistrelles



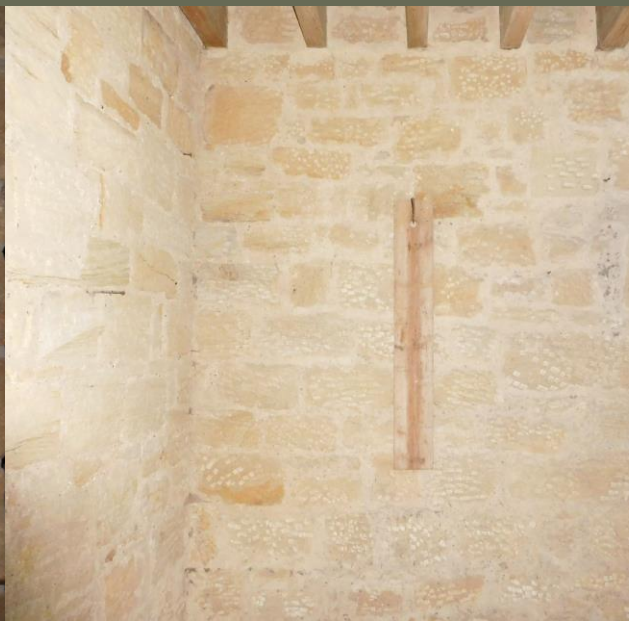
Counting pipistrelles

- Systematic search
- Torch and binoculars
- Long lens camera



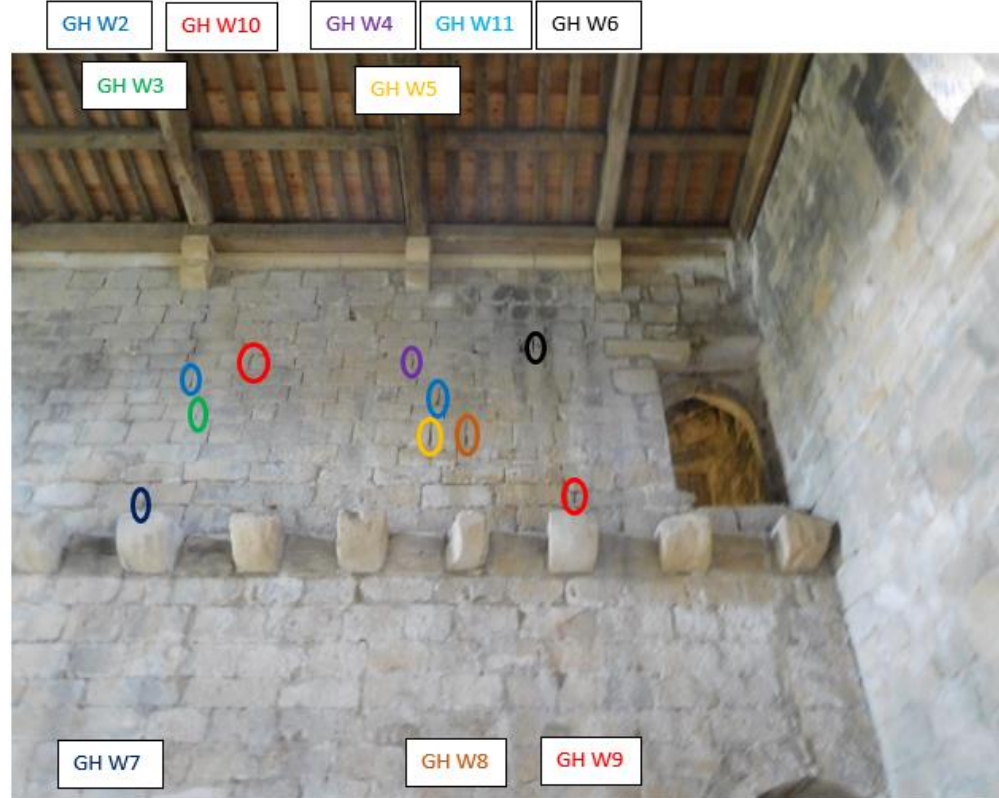
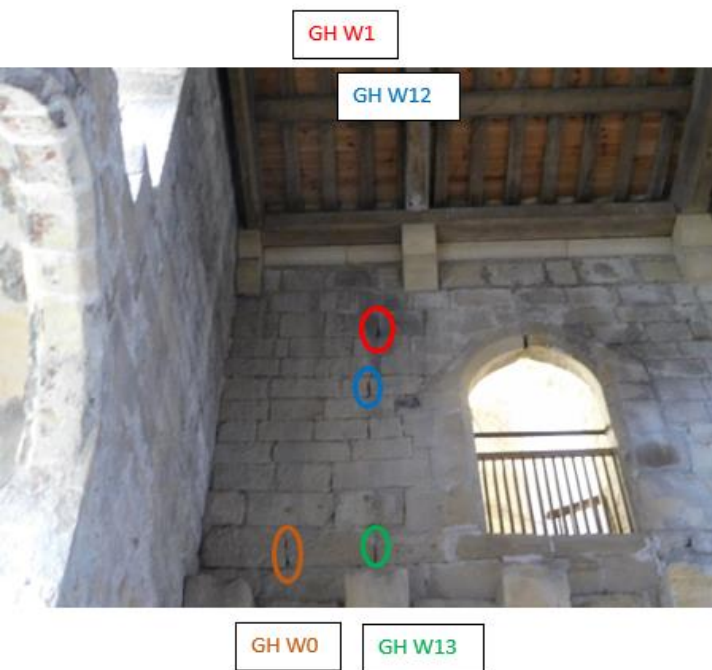
Counting pipistrelles

- Systematic search
- Torch and binoculars
- Record roost locations



Recording pipistrelles

- Record roost locations
- Photo guides



Ground floor

Great Hall, room 16, E wall N arch
G16 E wall N arch



Great Hall, room 16, 2nd floor, E central window
G216 E central window



Frost swarming

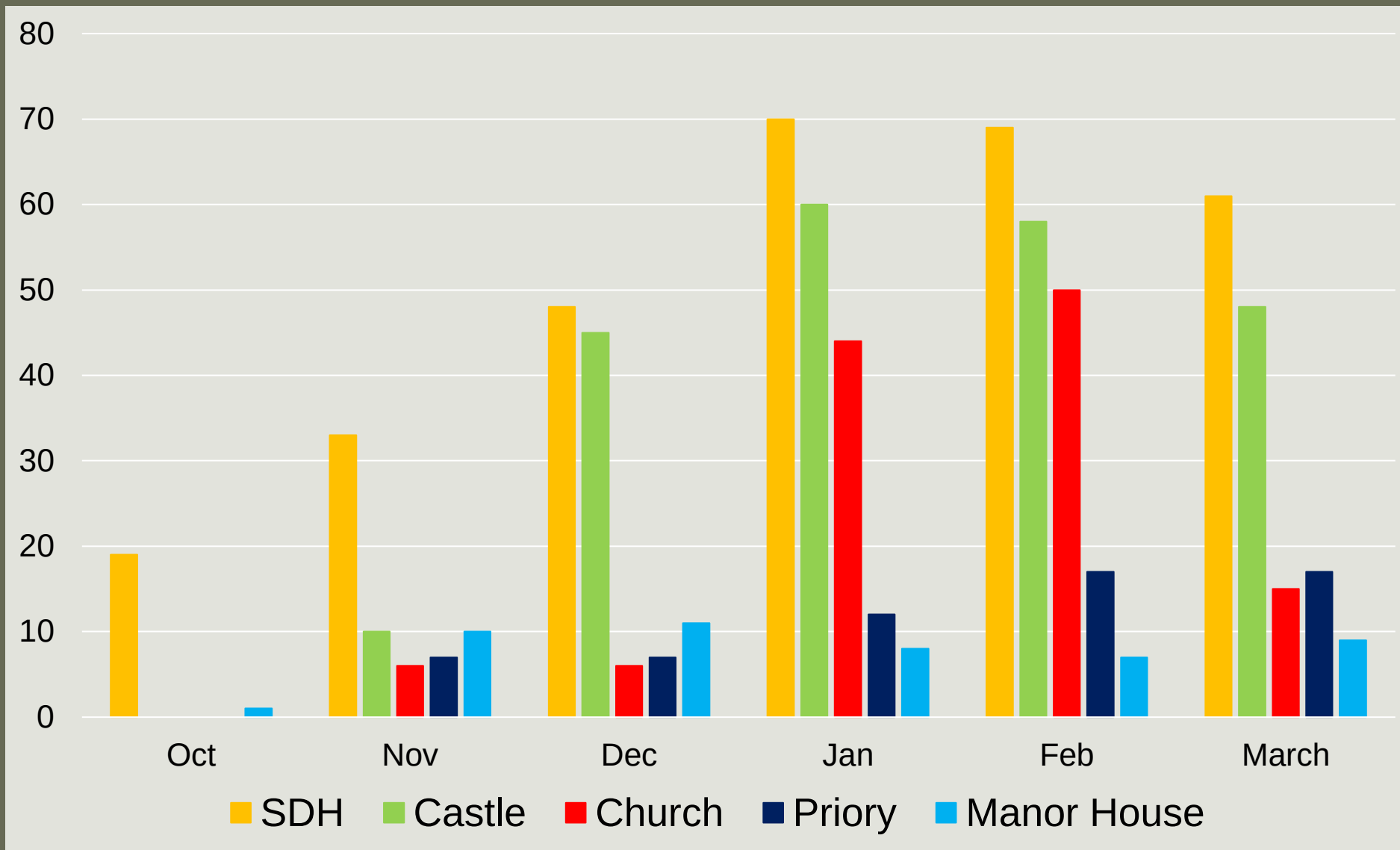
- Common pipistrelle swarm outside mass hibernacula in winter when temperature drops (Korsten et al., 2016)
- AudioMoths out from late November-mid March
 - ibuttons recording internal and external temperature



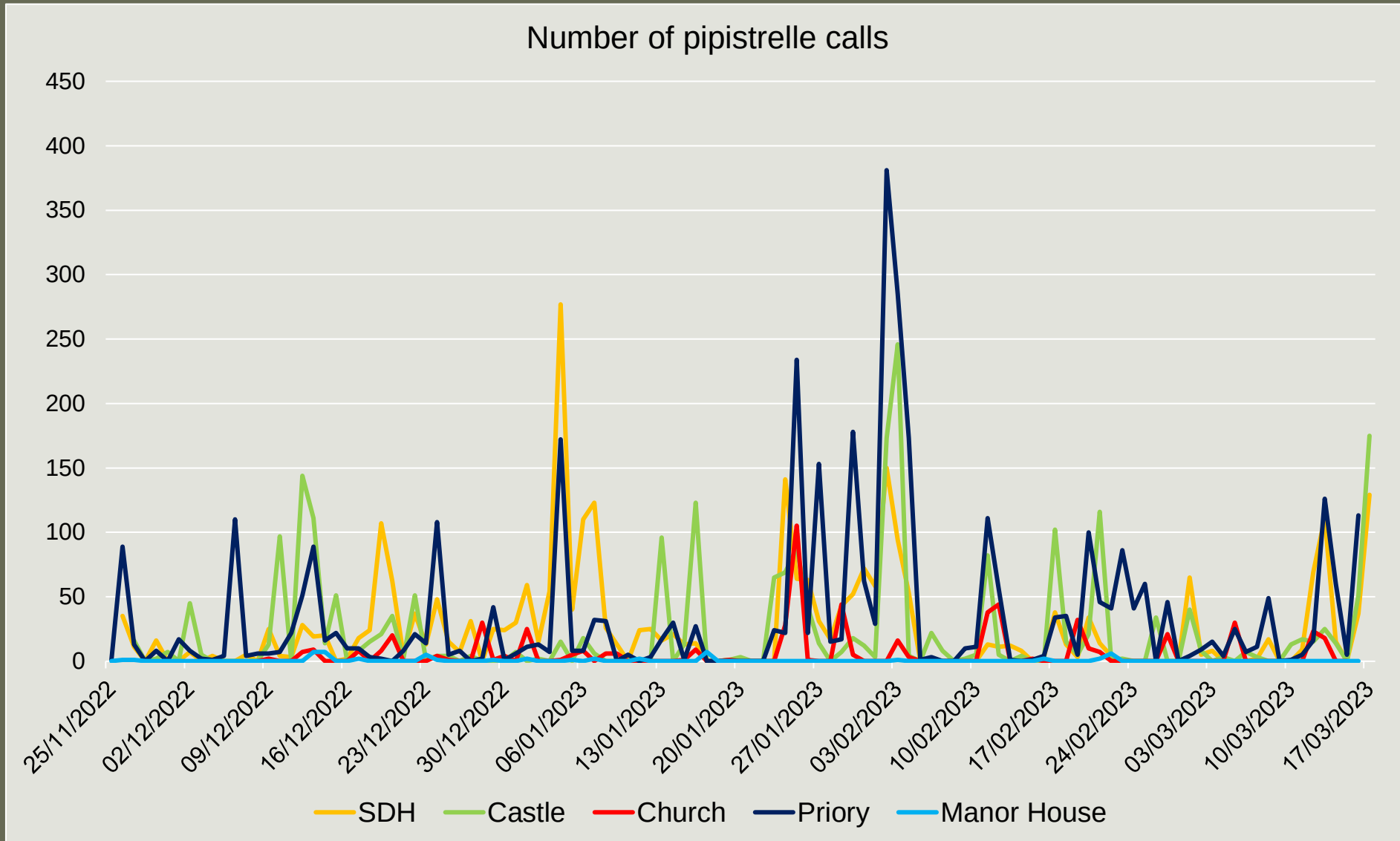
Frost swarming

- Five sites selected
 - Three known mass pipistrelle hibernacula
 - Two with known pipistrelle hibernation, but lower numbers of bats counted

Frost swarming

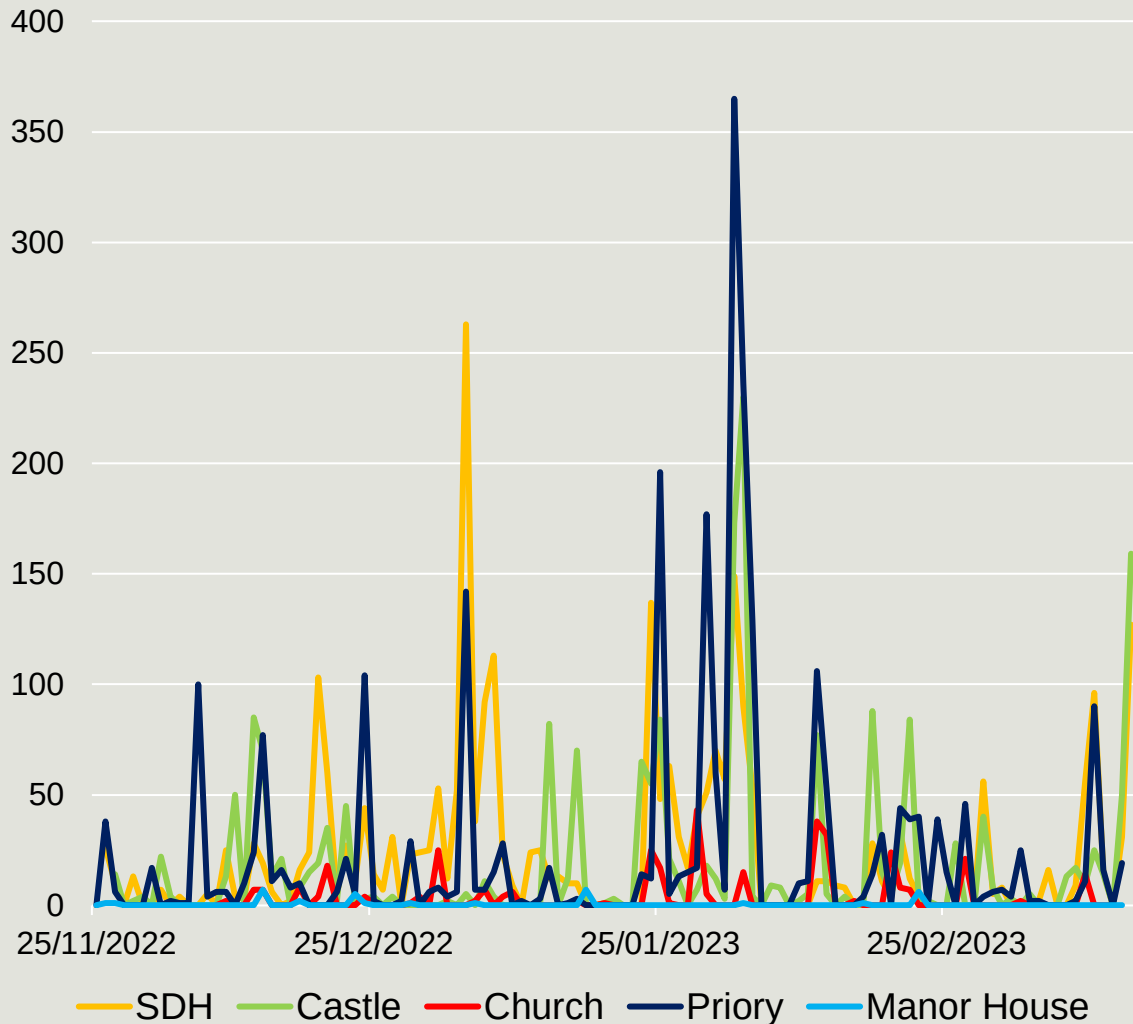


Frost swarming

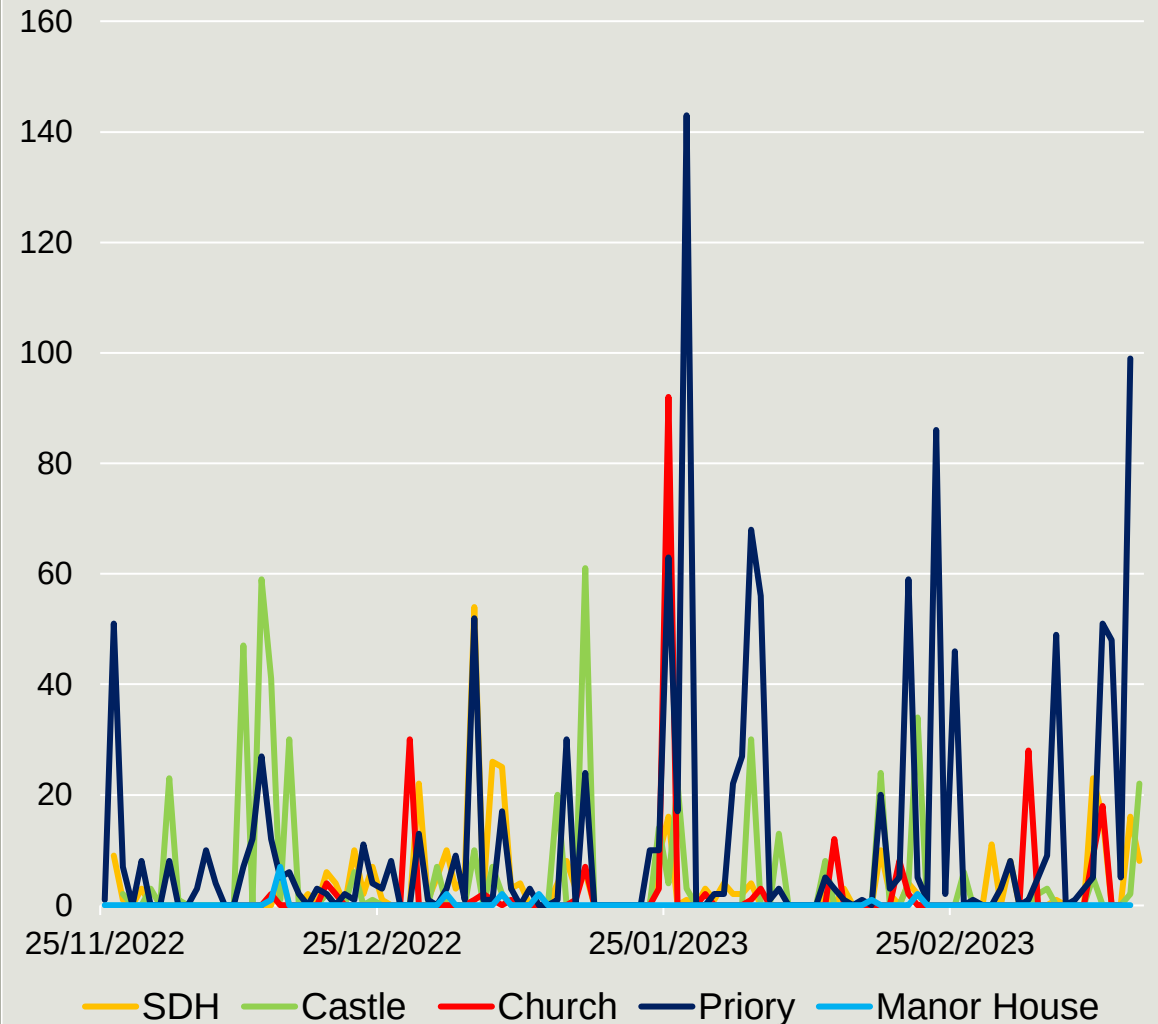


Frost swarming

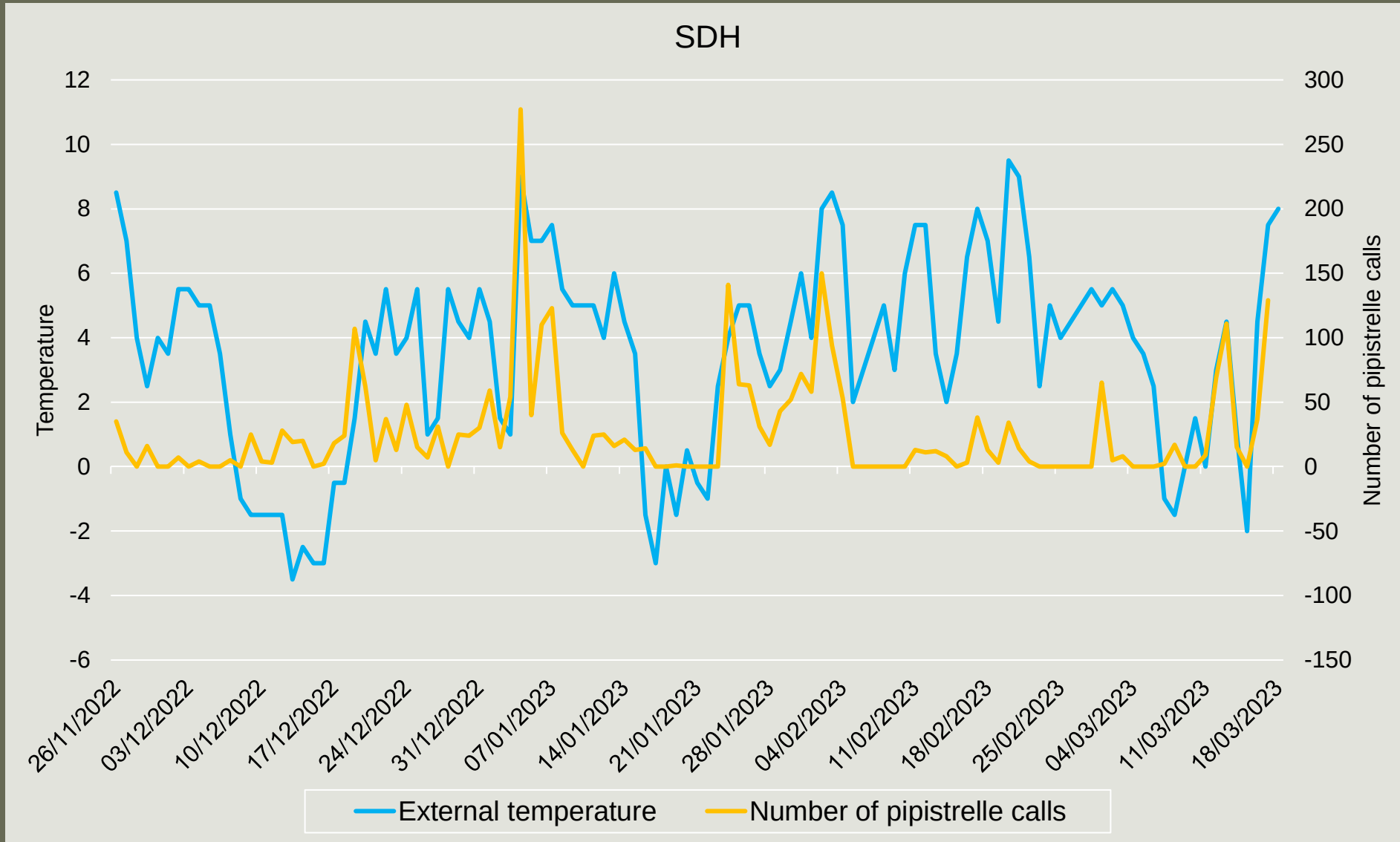
Number of common pipistrelle calls



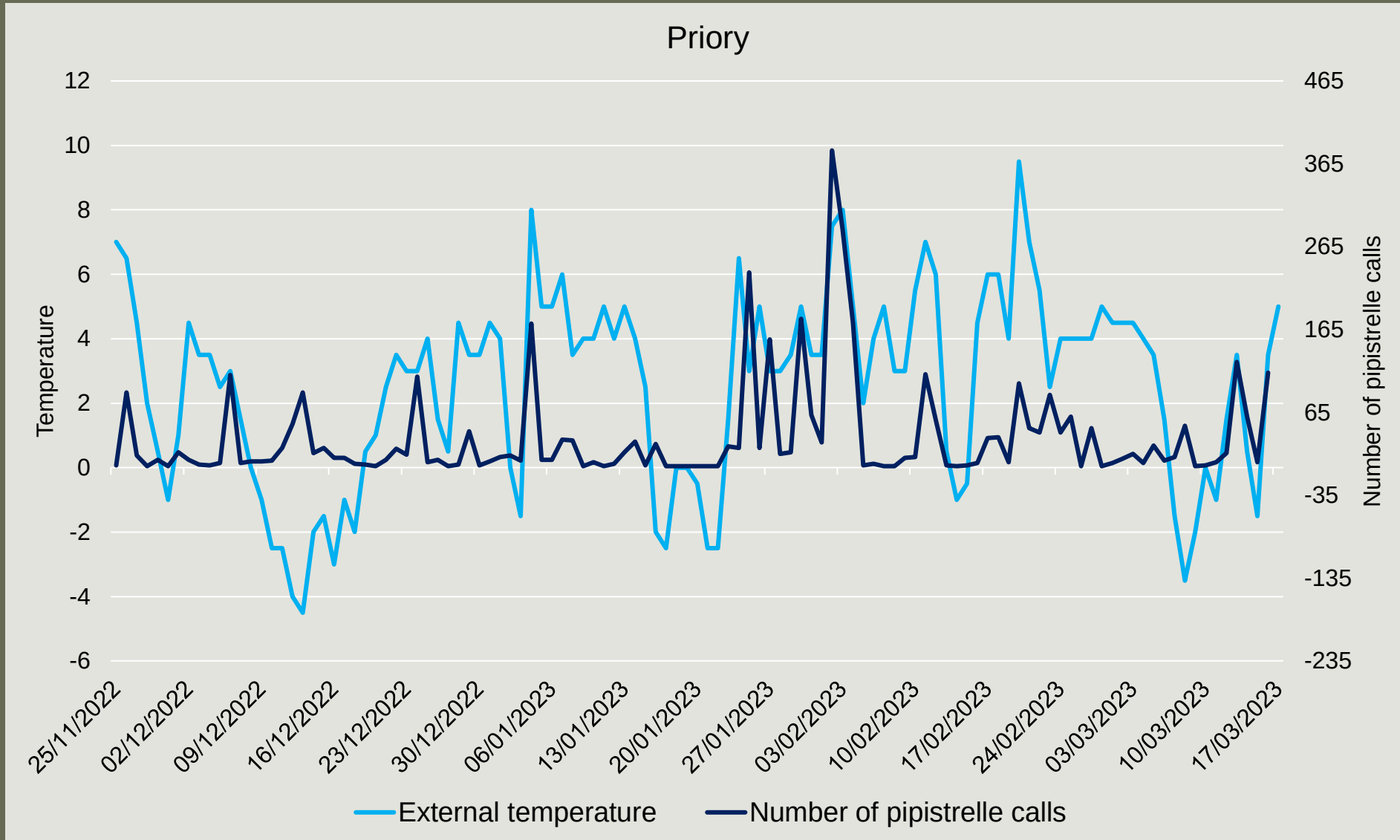
Number of soprano pipistrelle calls



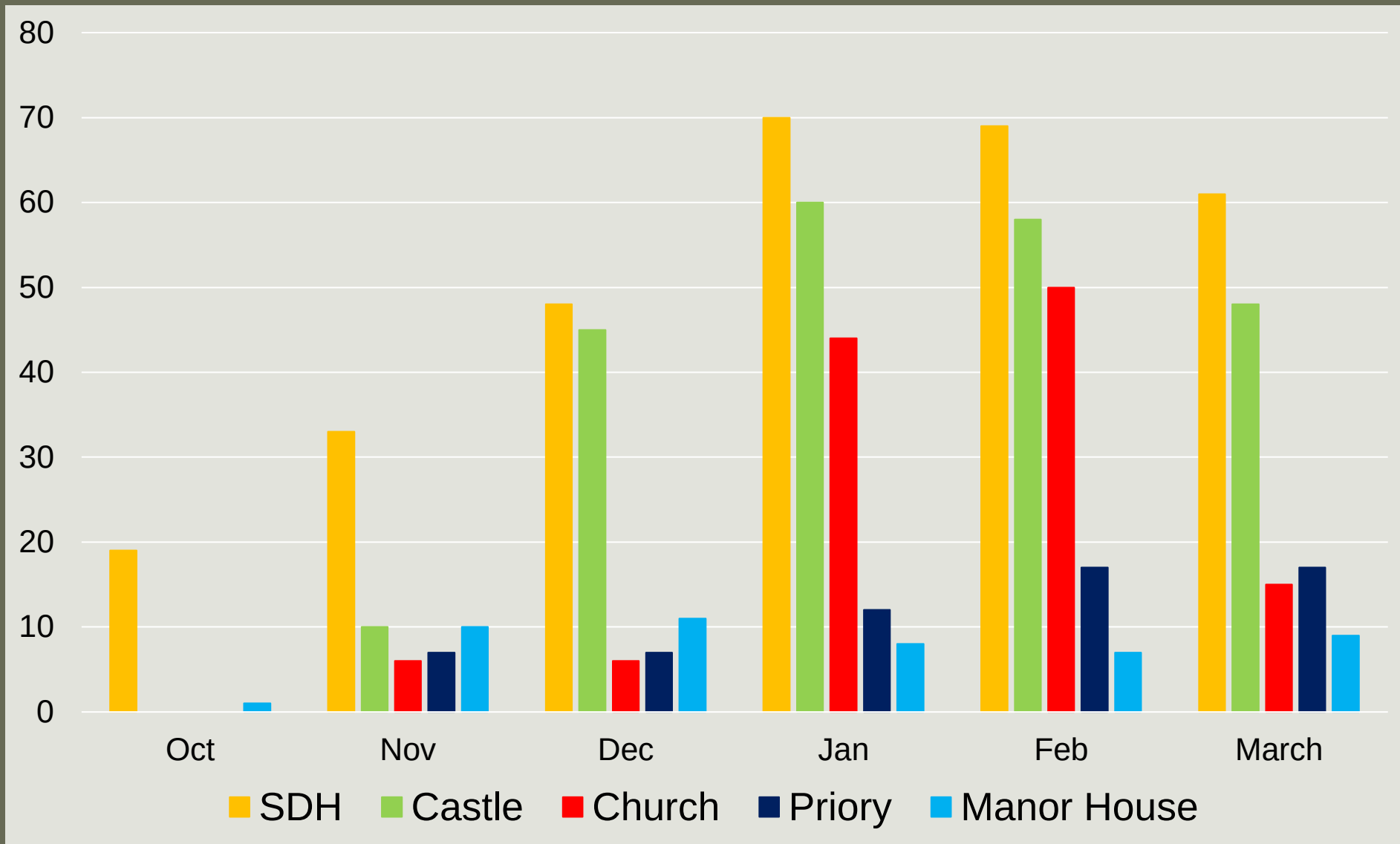
Frost swarming



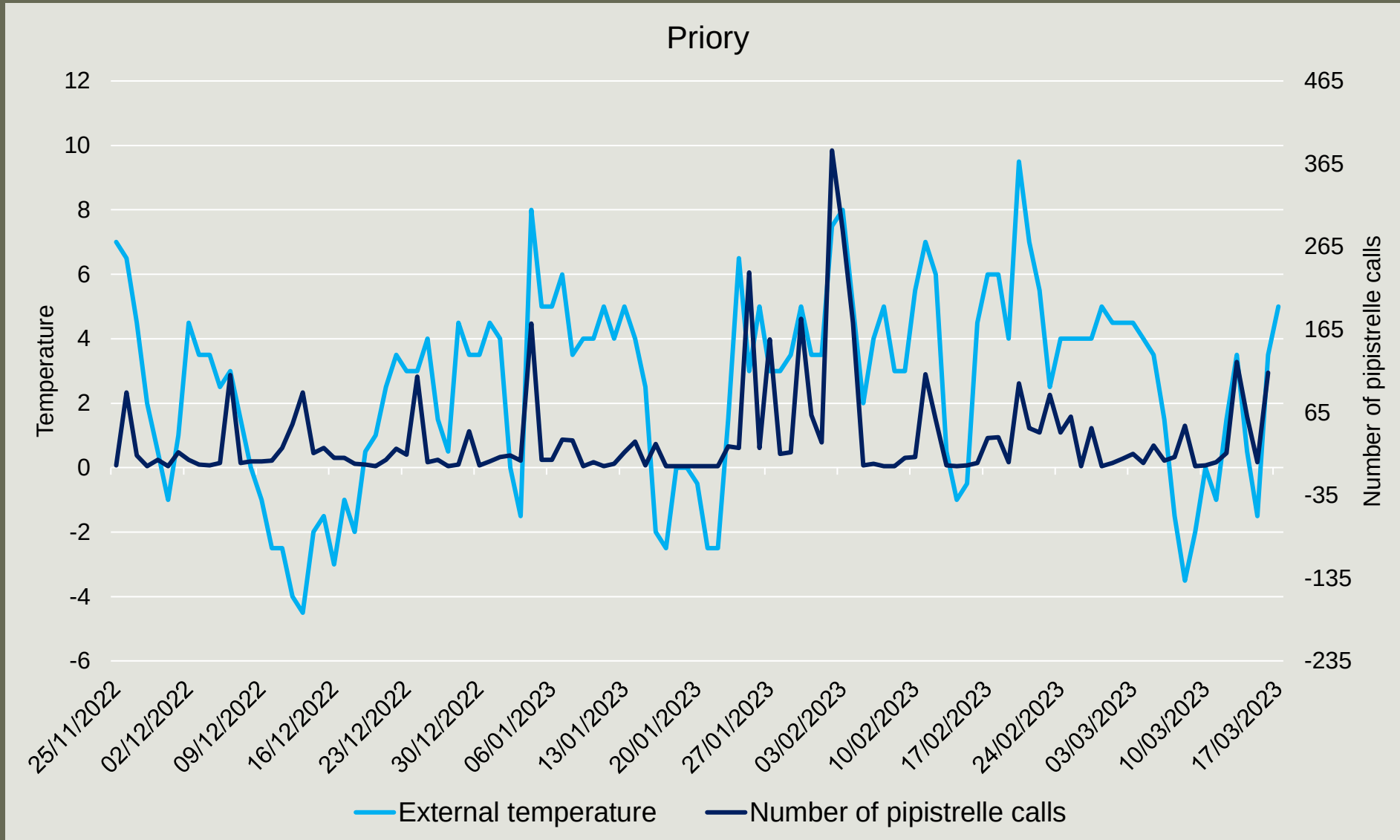
Frost swarming



Frost swarming



Frost swarming



Frost swarming

- Priory, more pipistrelle flight activity than counts suggest
 - Either these bats are far more active, or
 - Visual counts are missing loads of bats!
- The hidden percentage of bats is estimated to range from 22% to 90% (Jansen et al., 2014)
- Can this technique be used to assess the importance pipistrelle hibernacula?

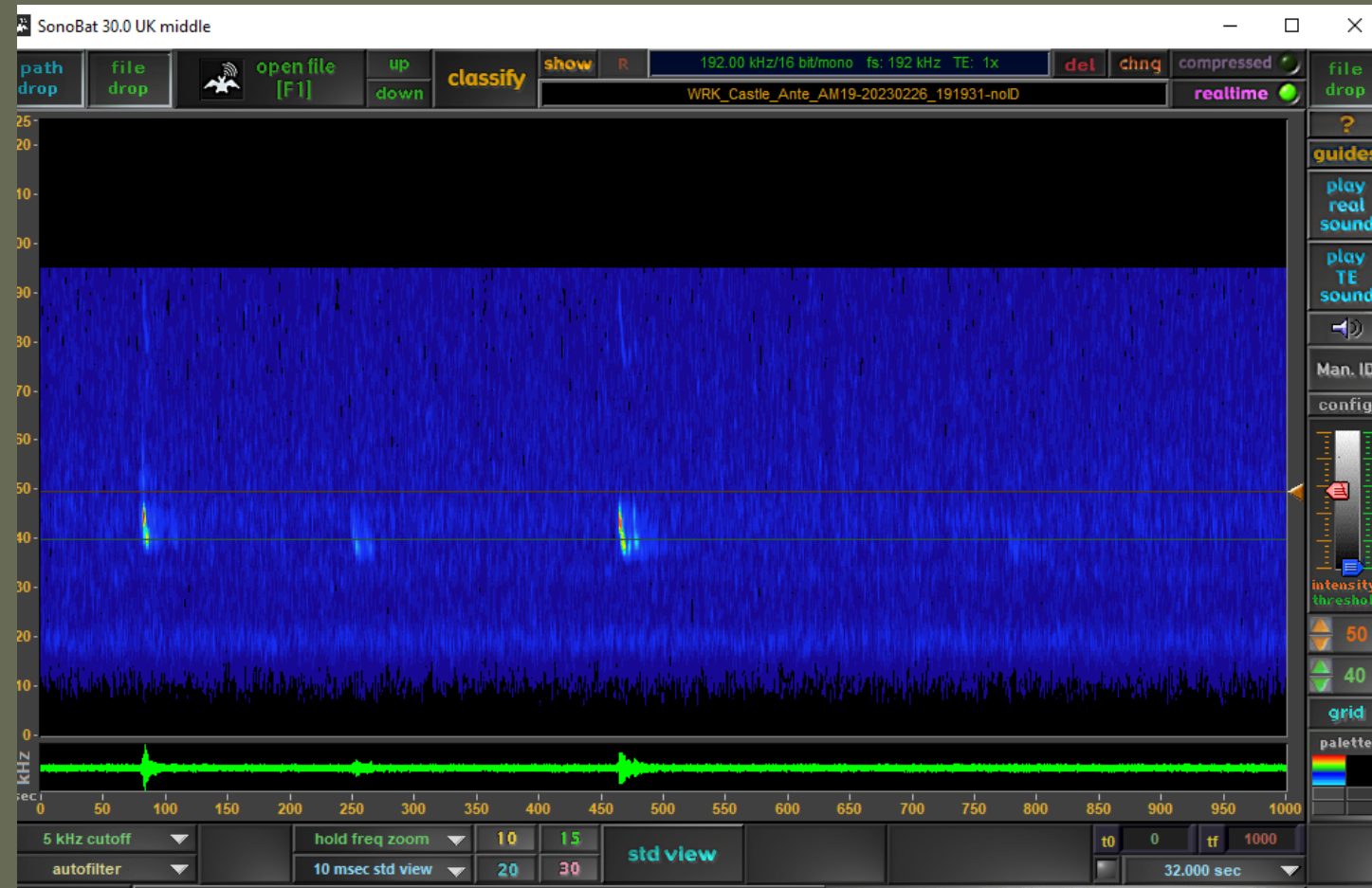
Nathusius' pipistrelle

- Nov 2022
- Feb 2023



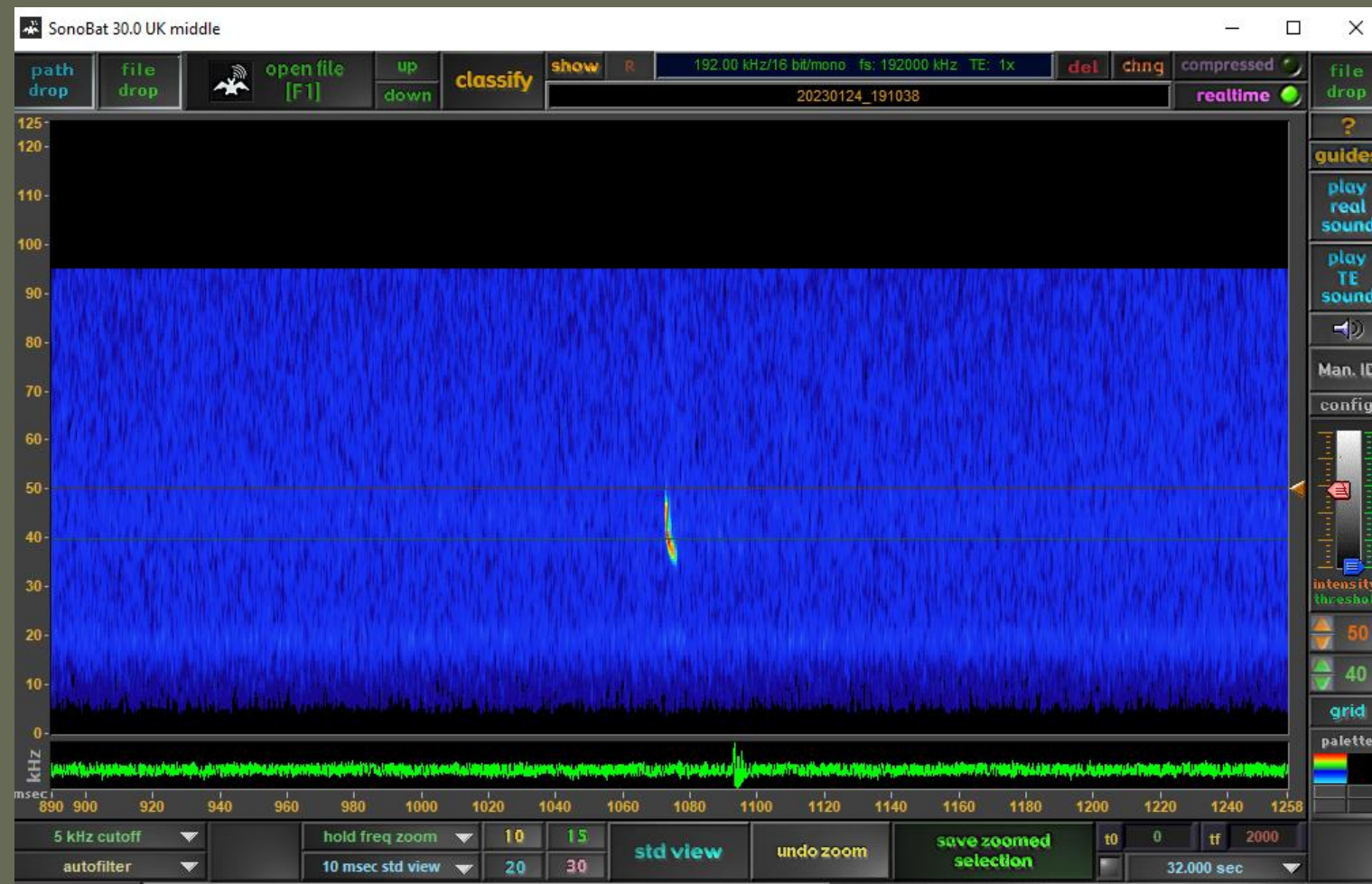
Nathusius' pipistrelle

- Nov 2022
 - Three files Feb 2023



Nathusius' pipistrelle

- Nov 2022
 - Three files Feb 2023
- Feb 2023
 - One site, no calls
 - Second site



Acknowledgements

- National Trust, English Heritage, the Church of England
 - For patiently unlocking and locking sites for us and hosting AudioMoths for months
- Martyn Cooke, Sonobat
 - For updating SonoBat to process AudioMoth files, twice
- Mandy Tomas, Neil Tomas, Lauren Withrington
 - For taking photographs of very challenging bats
- Reivers Bat Research Group, you know who you are
 - For company, laughter, bat finding and cake

More information

- British Islands Bats, Volume Four
 - <https://www.bats.org.uk/resources/accessing-journal-papers/british-islands-bats>
- Jansen, E.A., Limpens, H.J.G.A. and Schillemans, M. (2014) Automatic Monitoring of Bats in Hibernacula-Methods, Strengths and Shortcomings.
- Korsten, E., Jansen, E.A., Boonman, M., Schillemans, M.J. and Limpens, H.G.A. (2016) Swarm and switch: on the trail of the hibernating pipistrelle. *Bat News*, 10 pp. 8-10.
- Jansen, E.A., Korsten, E., Schillemans, M.J., Boonman, M. and Limpens, H.G. (2022) A method for actively surveying mass hibernation sites of the common pipistrelle (*Pipistrellus pipistrellus*) in the urban environment. *Lutra*, 65(1) pp. 201-219.
- **Get out and get looking!**

