Introduction

As bat carers, we break the law by taking, transporting and keeping bats, with the legal defence that it is in the best interests of the bats we care for. It is, however, worth remembering this and keeping records of what we have done and why. How many of us complete the bat care registration form, and how fully? What do we do with the forms at the end of a season?

One potential use of the data is to get a better idea of the relationship between a bat's size (forearm length) and weight. Information on the typical weight for any given species is given as a range. Many things affect a bat's weight, including time of year and whether it has been foraging successfully, but one would also expect a bat with a longer forearm to weigh more than a bat with a shorter forearm.

Tricia collated and graphed the data provided by 7 bat carers of the bats they have taken into care. This data isn't definitive, because some of the bats were taken into care for reasons which involved being underweight so Tricia also tried looking at release weights but this information has not been recorded by many carers. However, there does seem to be a ratio of 0.14 to 0.16 between a pipistrelle bat's forearm measurement and its weight (e.g. multiply f/a by 0.15 to get weight). This needs to be confirmed with more data, to allow a more robust analysis by gender and species, and if possible time of year.

Tricia is trying to get data from 'free' bats measured during trapping sessions but would also be grateful for any further records with release weights from carers.

What can the numbers tell us about bats?

Presentation to the National Bat Care Conference 2018

Tricia Scott

Warwickshire Bat Group

The idea was …

- To gather together data that carers collect about bats
- To collate them to provide guidance on what weight a carer should expect, for a bat to be fit to fly
- Starting simply:
  - Asking for minimum information
  - Excluding babies
  - Relating weights and forearm lengths

Bat Conservation Trust

Date of Registration _____ Reference _____

Release ☐ Permanent Captive ☐ Ring No _____

DoA ☐ Died ☐ Euthanased ☐ APHA ☐

BAT RESCUE REGISTER

Use in conjunction with BCT's Good Practice Guidelines. Use continuation sheet BRR2

THE FINDER

Found by _____ Date _____ Approximate time _____

Address _____

_____ Post code _____ Phone number _____

Collected/delivered by (if different from above) _____

Address _____

_____ Post code _____ Phone number _____

Bat found at _____ Grid reference or post code _____

Details _____

_____

_____ Roost ☐ Known ☐ Grid ref _____

Water given by finder _____ Any feeding by finder _____

_____

Any other information _____

_____

_____

Passed on for care by (signature) _____

Has anyone been bitten? Yes ☐ No ☐

If 'Yes' refer to BCT guidelines

THE BAT

Reason for Captivity

☐ Injured

☐ Adult - No apparent injury but flightless

☐ Baby - development stage _____

☐ Juvenile - ☐ Not yet flying

☐ Other _____

Details of Bat

Species _____

☐ Male ☐ Female ☐ Lactating ☐ Juvenile

Distinguishing marks (other than injuries)

_____

_____

Right Forearm length _____ mm

Weight on admission _____ gms

Injuries please mark on chart

What did I find?

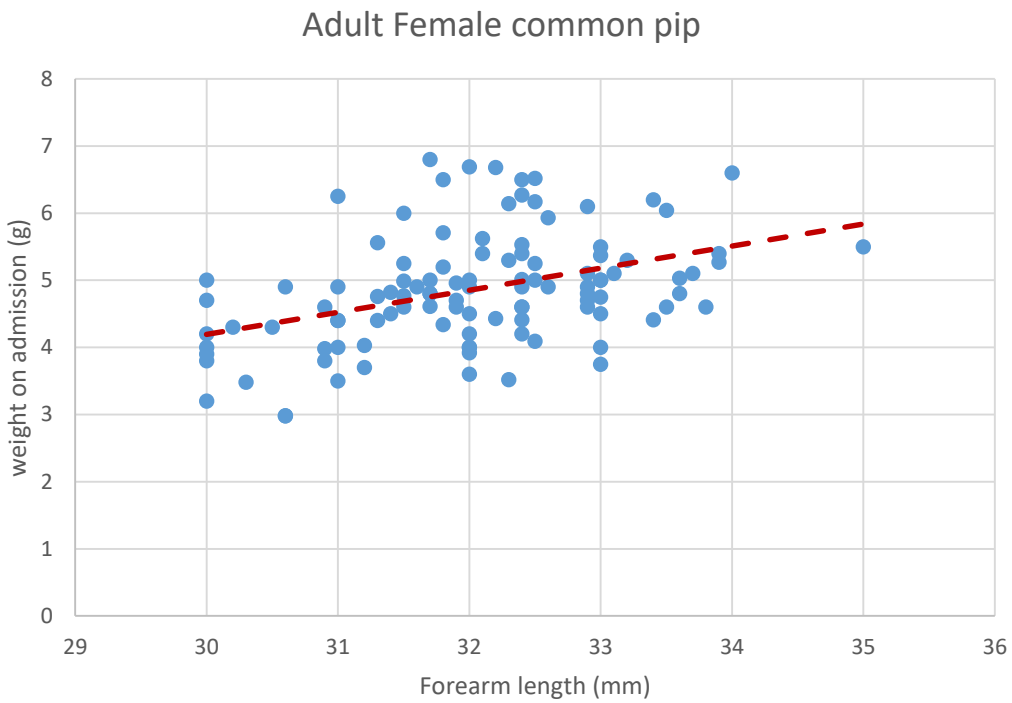
- 7 people provided data
  - Many thanks to Tina Wiffen, Annette Faulkener, Gil Cleeve, Peter Gulliver, Bridget Parslow and Rose-Ann Movsovic, Hazel Ryan
  - Plus a handful of records of my own

- Once I had removed any “non-specific” records, I had a total of 820
  - But only 128 with release weights

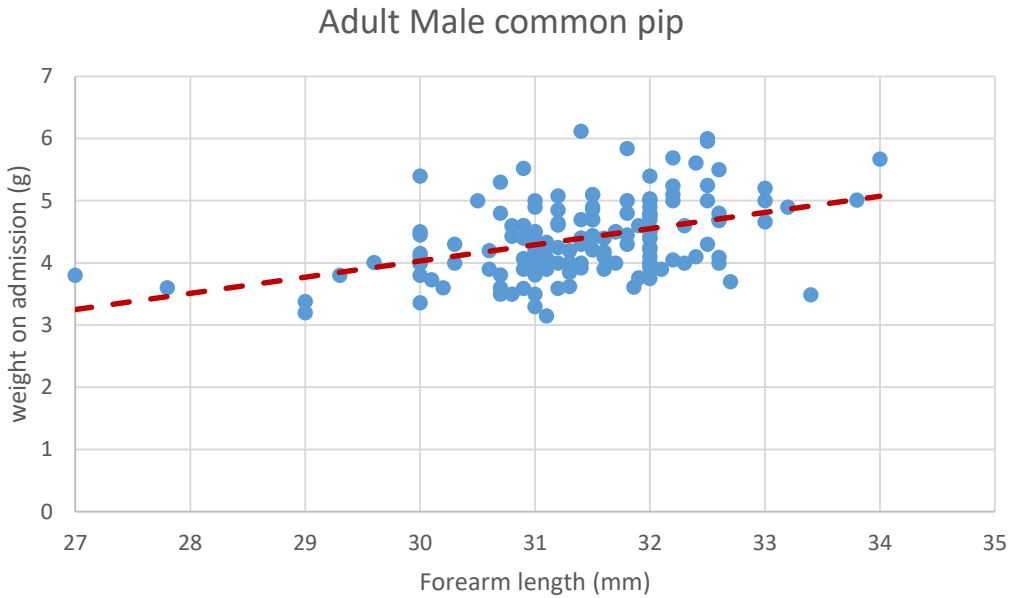
Summary

Species	Adult male	Adult female	Juv male	Juv female	Totals	With release weight
Common pip	150	108	79	42	**379**	**53**
Soprano pip	49	48	63	57	**217**	**43**
BLE	46	40	13	7	**106**	**13**
Natterer's	9	5	6	4	**24**	**5**
Daubenton's	5	10	3	8	**26**	**5**
Whiskered	3	9	6	1	**19**	**5**
WAB	4	8	7	1	**20**	**2**
Brandt's	1	1	2	5	**9**	**2**
'big bats'	5	4	3	1	**13**	**0**

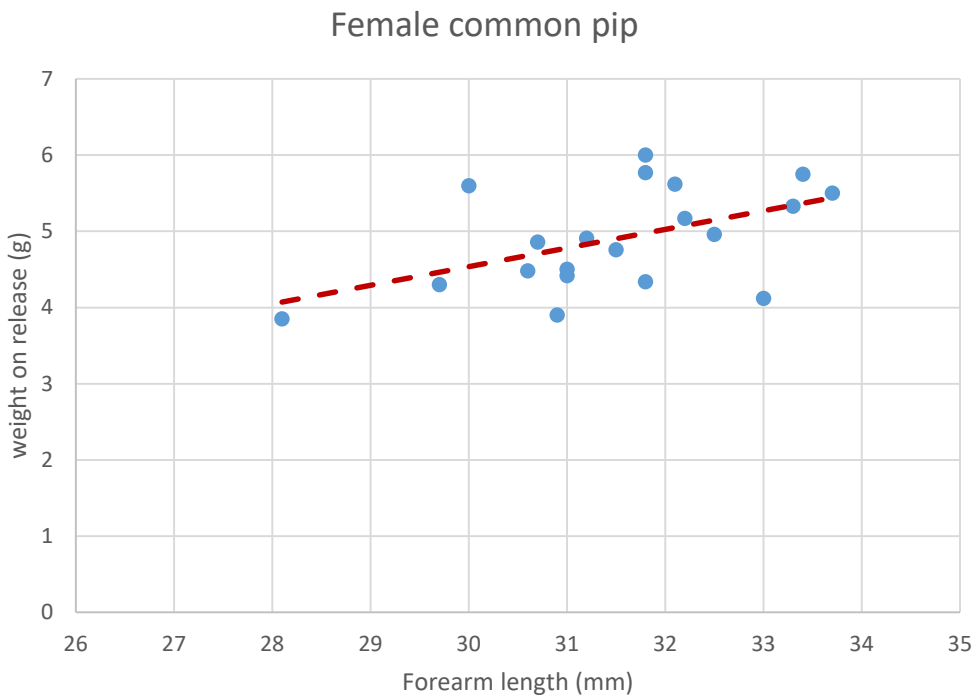
Also 1 Barbastelle, 1 LHS, 5 Pip Nat



	f/a length (mm)	weight (g)	ratio
Min	30.0	3.0	0.10
Max	35.0	6.8	0.21
Mean	32.0	4.9	0.15
Median	32.0	4.8	0.15
Mode	32.4	4.6	



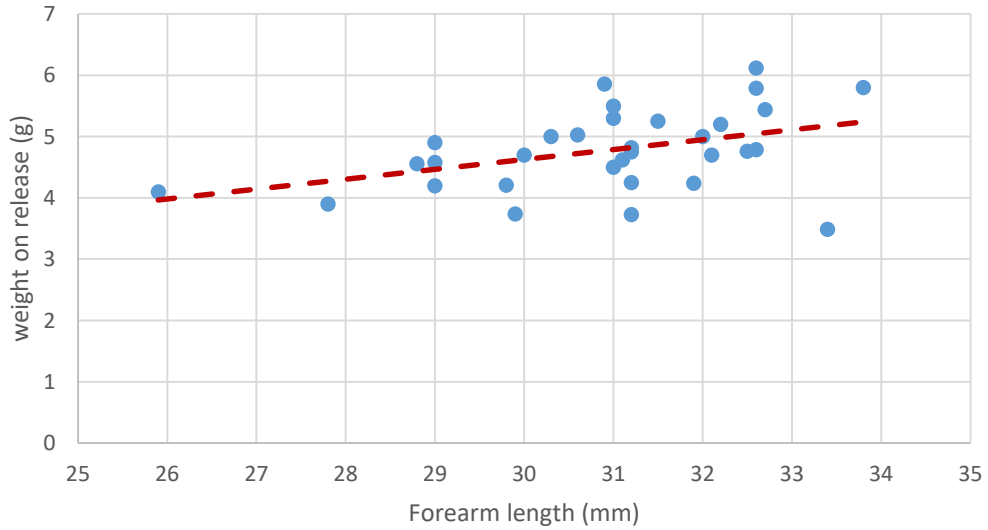
	f/a length (mm)	weight (g)	ratio
Min	27.0	3.2	0.10
Max	34.0	6.1	0.19
Mean	31.4	4.4	0.14
Median	31.4	4.4	0.14
Mode	32.0	4.0	



Measurements on release (adults and juveniles combined)

	f/a length (mm)	weight (g)	ratio
Min	28.1	3.9	0.12
Max	33.7	6.0	0.19
Mean	31.5	4.9	0.16
Median	31.7	4.9	0.15
Mode			

	f/a length (mm)	weight (g)	ratio
Min	30.0	3.0	0.10
Max	35.0	6.8	0.21
Mean	32.0	4.9	0.15
Median	32.0	4.8	0.15
Mode	32.4	4.6	



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Min	25.9	3.5	0.10
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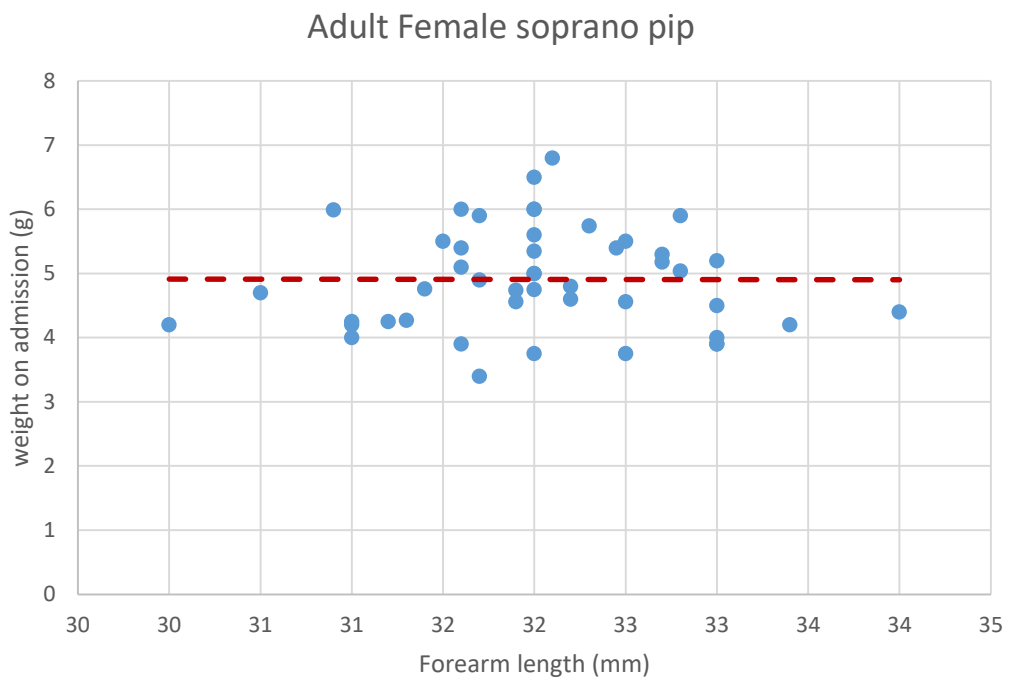
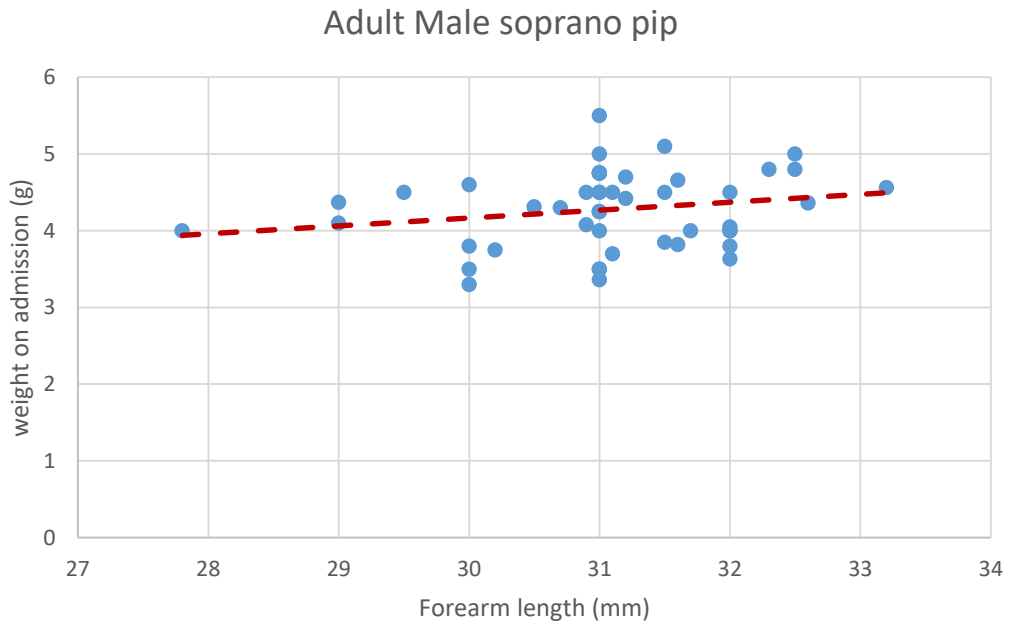
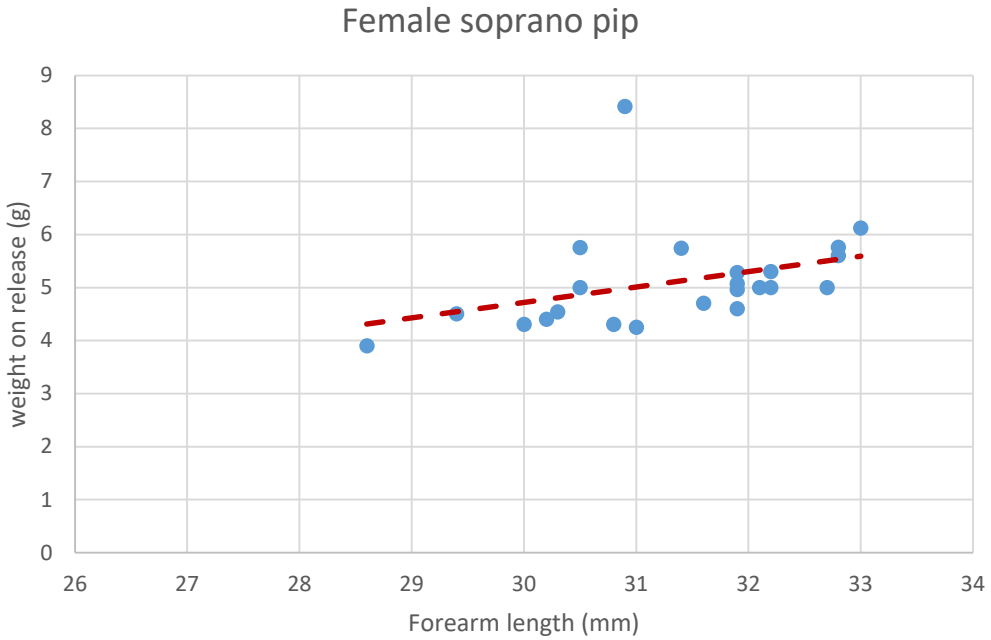
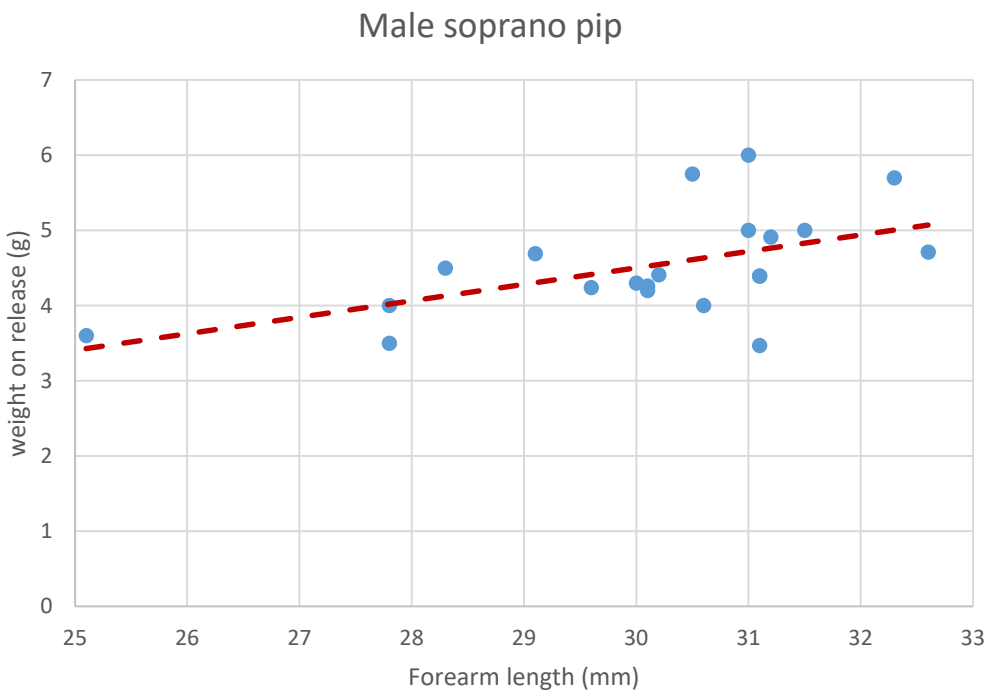


	f/a length (mm)	weight (g)	ratio
Min	30.0	3.4	0.11
Max	34.0	6.8	0.21
Mean	32.0	4.9	0.15
Median	32.0	4.8	0.15
Mode	32.0	4.2	



	f/a length (mm)	weight (g)	ratio
Min	27.8	3.3	0.11
Max	33.2	5.5	0.18
Mean	31.1	4.3	0.14
Median	31.0	4.3	0.14
Mode	31.0	4.5	





Measurements on release (adults and juveniles combined)

	f/a length (mm)	weight (g)	ratio
Min	28.6	3.9	0.14
Max	33.0	8.4	0.27
Mean	31.3	5.1	0.16
Median	31.6	5.0	0.16
Mode			

	f/a length (mm)	weight (g)	ratio
Min	30.0	3.4	0.11
Max	34.0	6.8	0.21
Mean	32.0	4.9	0.15
Median	32.0	4.8	0.15
Mode	32.0	4.2	

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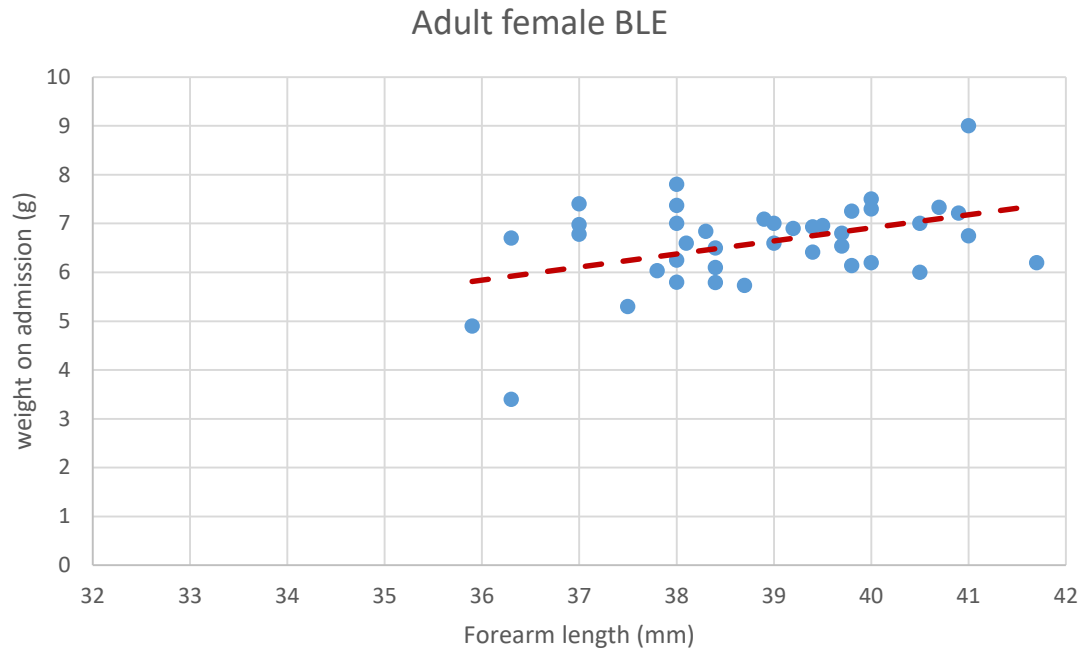
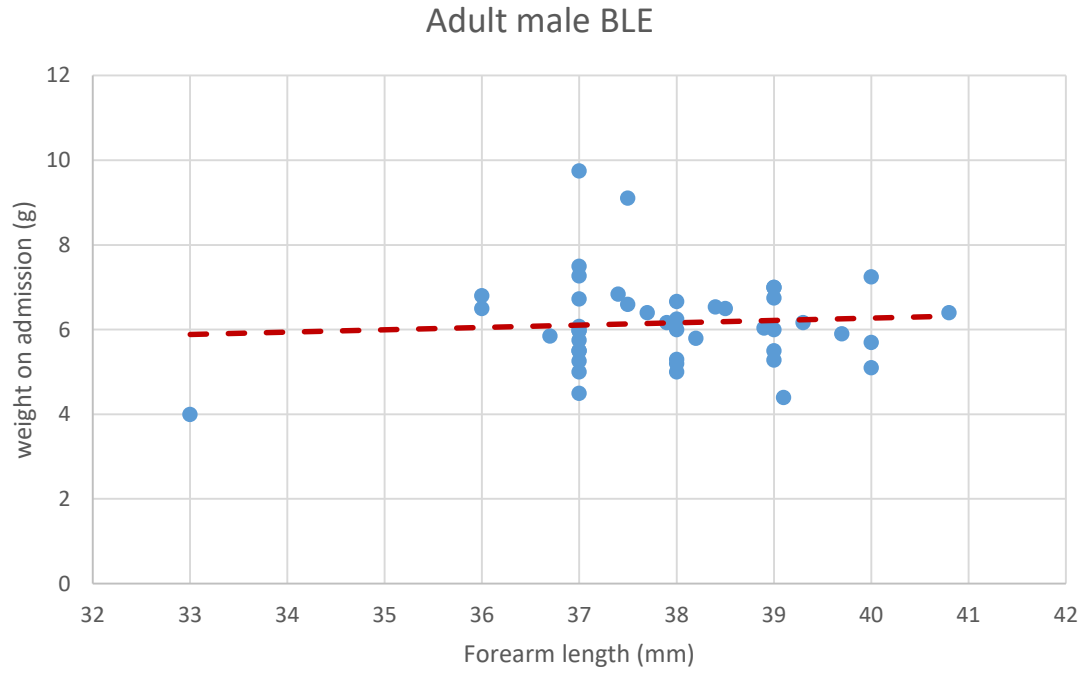
Min	25.1	3.5	0.11
Max	32.6	6.0	0.19
Mean	30.1	4.5	0.15
Median	30.5	4.4	0.14
Mode			

	f/a length (mm)	weight (g)	ratio
Min	27.8	3.3	0.11
Max	33.2	5.5	0.18
Mean	31.1	4.3	0.14
Median	31.0	4.3	0.14
Mode	31.0	4.5	



	f/a length (mm)	weight (g)	ratio
Min	35.9	3.4	0.09
Max	41.7	9.0	0.22
Mean	38.9	6.6	0.17
Median	39.0	6.8	0.17
Mode	38.0	7.0	



	f/a length (mm)	weight (g)	ratio
Min	33.0	4.0	0.11
Max	40.8	9.8	0.26
Mean	37.9	6.2	0.16
Median	38.0	6.1	0.16
Mode	37.0	5.5	

So what did I find out?

- A limited number of carers have the data available
  - Not collected
  - Not collated
  - Particularly measurements on release
- Weight on entry is affected by so many factors
  - Without shed-loads of data there's no way to take all factors into account
- Data on 'wild' bats might be more useful as a guide for fit-to-release

So what did the numbers tell me?

- For pipistrelles, at least, there do seem to be ratios that we could use
  - Based on release weights

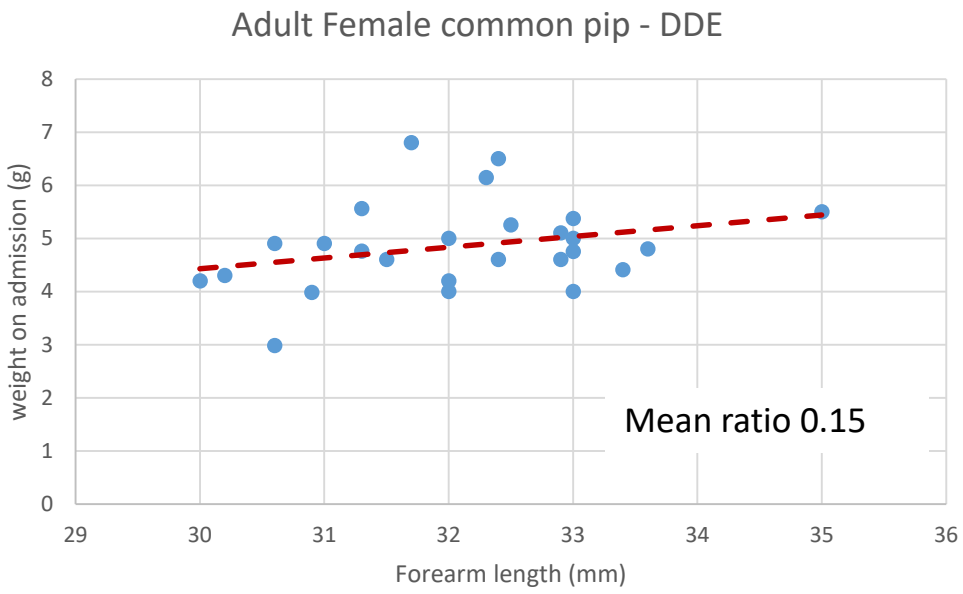
- Common pip: multiply f/a by 0.15 – 0.16 for ‘fit’ weight
  - e.g. If f/a measurement 30mm -> weight 4.5 – 4.8g
- Soprano pip, female: multiply f/a by 0.16 for ‘fit’ weight
- Soprano pip, male: multiply f/a by 0.14 – 0.15 for ‘fit’ weight

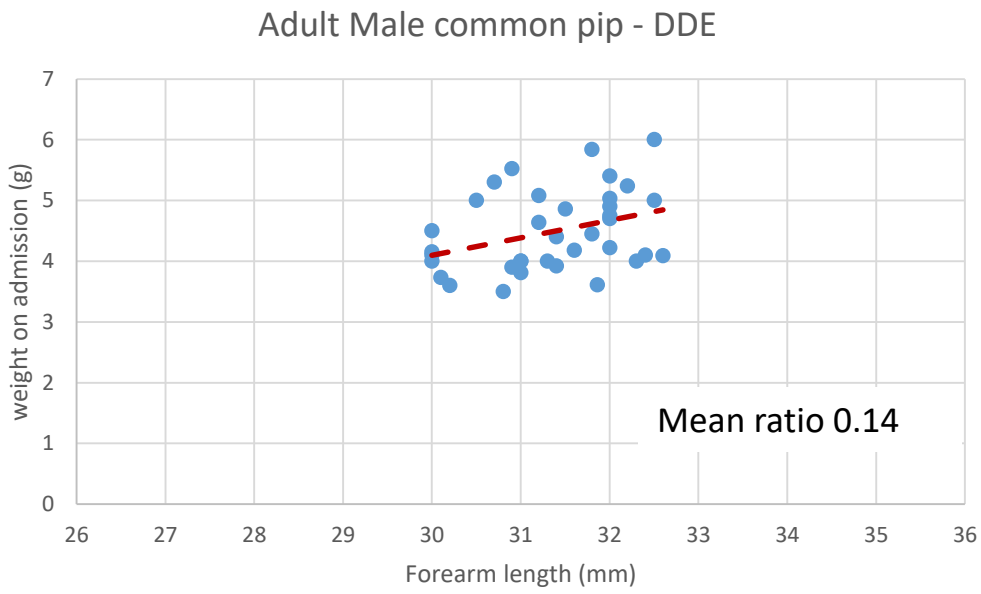
- But would prefer to have more data before suggesting this as a ‘rule of thumb’

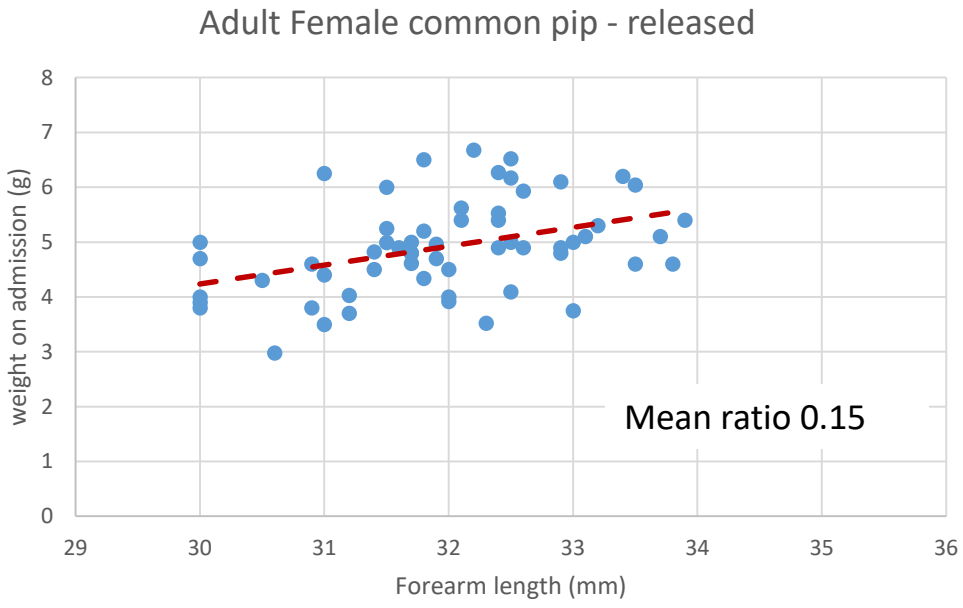
So what?

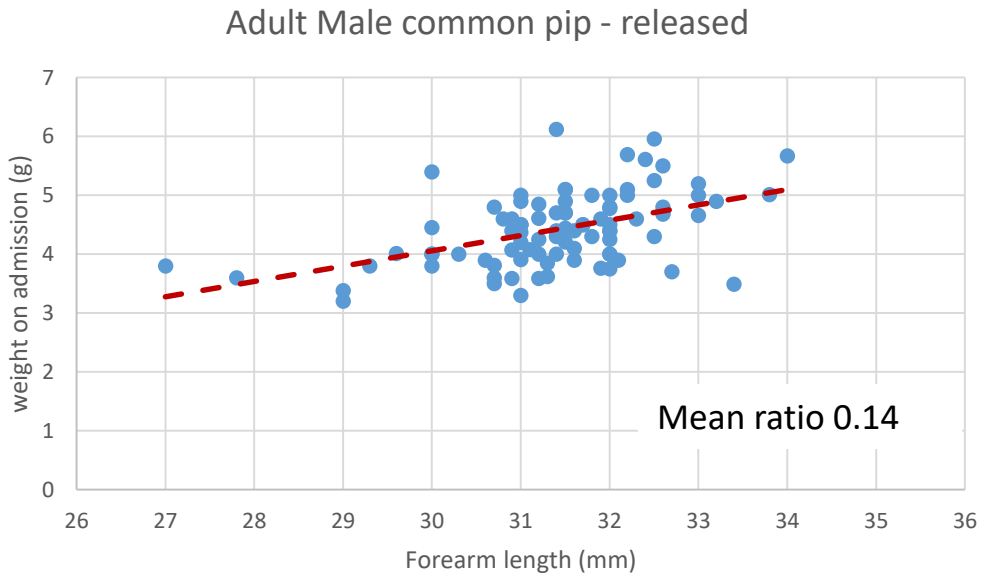
- Do we need to take the time to collect/collate data?
  - What data is the minimum we should all collect?

By Outcome


Adult Female common pip - DDE
weight on admission (g)
Forearm length (mm)
Mean ratio 0.15


Adult Male common pip - DDE
weight on admission (g)
Forearm length (mm)
Mean ratio 0.14


Adult Female common pip - released
weight on admission (g)
Forearm length (mm)
Mean ratio 0.15


Adult Male common pip - released
weight on admission (g)
Forearm length (mm)
Mean ratio 0.14