



Technical Appendix 8.9

Ecobat Output

Ecobat Bat Activity Analysis

Site Name: Euchanhead (2018 Survey Data)

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Summary

Bat surveys were conducted at Euchanhead, Loc2, Euchanhead, Loc1, Euchanhead, Loc5, Euchanhead, Loc3, Euchanhead, Loc4, Euchanhead, Loc9, Euchanhead, Loc6, Euchanhead, Loc7, for 56 nights between 2018-05-07 and 2018-09-17, using Titley Scientific static bat detectors. The maximum of passes recorded in a single night was 532 passes, and 6 species were recorded.

The reference range dataset was stratified to include:

- Only records from within 30 days of the survey date.
- Only records from within 100km² of the survey location.
- Records using any make of bat detector.

Table 1

Summary table showing the number of nights recorded bat activity fell into each activity band for each species.

| Location | Species/Species Group | Nights of High Activity | Nights of Moderate/ High Activity | Nights of Moderate Activity | Nights of Low/ Moderate Activity | Nights of Low Activity |
|------------------|----------------------------------|-------------------------|-----------------------------------|-----------------------------|----------------------------------|------------------------|
| Euchanhead, Loc1 | <i>Myotis</i> | 2 | 8 | 3 | 2 | 12 |
| Euchanhead, Loc1 | <i>Nyctalus</i> | 1 | 1 | 2 | 2 | 9 |
| Euchanhead, Loc1 | <i>Pipistrellus</i> | 0 | 0 | 1 | 0 | 1 |
| Euchanhead, Loc1 | <i>Pipistrellus pipistrellus</i> | 0 | 1 | 6 | 3 | 9 |
| Euchanhead, Loc1 | <i>Pipistrellus pygmaeus</i> | 0 | 3 | 0 | 0 | 15 |
| Euchanhead, Loc1 | <i>Plecotus auritus</i> | 0 | 1 | 3 | 1 | 17 |
| Euchanhead, | <i>Myotis</i> | 0 | 0 | 0 | 0 | 3 |

| Location | Species/Species Group | Nights of High Activity | Nights of Moderate/ High Activity | Nights of Moderate Activity | Nights of Low/ Moderate Activity | Nights of Low Activity |
|------------------|----------------------------------|-------------------------|-----------------------------------|-----------------------------|----------------------------------|------------------------|
| Loc2 | | | | | | |
| Euchanhead, Loc2 | <i>Nyctalus</i> | 0 | 0 | 0 | 2 | 2 |
| Euchanhead, Loc2 | <i>Pipistrellus</i> | 1 | 0 | 0 | 0 | 0 |
| Euchanhead, Loc2 | <i>Pipistrellus pipistrellus</i> | 14 | 4 | 2 | 1 | 2 |
| Euchanhead, Loc2 | <i>Pipistrellus pygmaeus</i> | 12 | 5 | 0 | 1 | 4 |
| Euchanhead, Loc3 | <i>Myotis</i> | 0 | 0 | 0 | 0 | 1 |
| Euchanhead, Loc3 | <i>Nyctalus</i> | 0 | 0 | 0 | 3 | 4 |
| Euchanhead, Loc3 | <i>Pipistrellus</i> | 3 | 1 | 1 | 1 | 0 |
| Euchanhead, Loc3 | <i>Pipistrellus pipistrellus</i> | 2 | 4 | 6 | 0 | 8 |
| Euchanhead, Loc3 | <i>Pipistrellus pygmaeus</i> | 3 | 4 | 2 | 2 | 9 |
| Euchanhead, Loc3 | <i>Plecotus auritus</i> | 0 | 0 | 0 | 0 | 3 |
| Euchanhead, Loc4 | <i>Myotis</i> | 0 | 3 | 1 | 0 | 7 |
| Euchanhead, Loc4 | <i>Nyctalus</i> | 0 | 0 | 0 | 0 | 2 |
| Euchanhead, Loc4 | <i>Pipistrellus</i> | 1 | 0 | 0 | 0 | 0 |
| Euchanhead, Loc4 | <i>Pipistrellus pipistrellus</i> | 3 | 3 | 0 | 5 | 7 |
| Euchanhead, Loc4 | <i>Pipistrellus pygmaeus</i> | 1 | 1 | 2 | 2 | 3 |
| Euchanhead, Loc4 | <i>Plecotus auritus</i> | 1 | 2 | 2 | 0 | 6 |
| Euchanhead, Loc5 | <i>Myotis</i> | 0 | 1 | 1 | 0 | 11 |
| Euchanhead, Loc5 | <i>Nyctalus</i> | 0 | 1 | 0 | 0 | 2 |
| Euchanhead, Loc5 | <i>Pipistrellus</i> | 0 | 4 | 0 | 0 | 0 |
| Euchanhead, Loc5 | <i>Pipistrellus</i> | 0 | 8 | 4 | 3 | 7 |

| Location | Species/Species Group | Nights of High Activity | Nights of Moderate/ High Activity | Nights of Moderate Activity | Nights of Low/ Moderate Activity | Nights of Low Activity |
|------------------|----------------------------------|-------------------------|-----------------------------------|-----------------------------|----------------------------------|------------------------|
| Loc5 | <i>pipistrellus</i> | | | | | |
| Euchanhead, Loc5 | <i>Pipistrellus pygmaeus</i> | 0 | 2 | 6 | 3 | 3 |
| Euchanhead, Loc5 | <i>Plecotus auritus</i> | 0 | 0 | 1 | 0 | 4 |
| Euchanhead, Loc6 | <i>Pipistrellus pipistrellus</i> | 1 | 0 | 1 | 3 | 6 |
| Euchanhead, Loc6 | <i>Pipistrellus pygmaeus</i> | 0 | 1 | 0 | 0 | 2 |
| Euchanhead, Loc7 | <i>Nyctalus</i> | 0 | 0 | 0 | 0 | 1 |
| Euchanhead, Loc7 | <i>Pipistrellus pipistrellus</i> | 0 | 0 | 0 | 0 | 1 |
| Euchanhead, Loc9 | <i>Myotis</i> | 0 | 2 | 1 | 1 | 6 |
| Euchanhead, Loc9 | <i>Nyctalus</i> | 0 | 0 | 0 | 0 | 1 |
| Euchanhead, Loc9 | <i>Pipistrellus pipistrellus</i> | 0 | 0 | 0 | 0 | 4 |
| Euchanhead, Loc9 | <i>Pipistrellus pygmaeus</i> | 1 | 6 | 2 | 2 | 10 |

Table 2

Summary table showing key metrics for each species recorded.

| Location | Species/Species Group | Median Percentile | 95% CIs | Max Percentile | Nights Recorded | Reference Range |
|------------------|----------------------------------|-------------------|-------------|----------------|-----------------|-----------------|
| Euchanhead, Loc1 | <i>Myotis</i> | 38 | 25 - 49 | 82 | 27 | 854.6 |
| Euchanhead, Loc1 | <i>Nyctalus</i> | 1 | 1 - 42 | 83 | 15 | 1385 |
| Euchanhead, Loc1 | <i>Pipistrellus</i> | 27 | 27 - 27 | 53 | 2 | 4652 |
| Euchanhead, Loc1 | <i>Pipistrellus pipistrellus</i> | 38 | 19.5 - 43.5 | 71 | 19 | 2381 |
| Euchanhead, Loc1 | <i>Pipistrellus pygmaeus</i> | 1 | 1 - 36 | 76 | 18 | 3175 |
| Euchanhead, Loc1 | <i>Plecotus auritus</i> | 6 | 3.5 - | 75 | 22 | 87.73 |

| Location | Species/Species Group | Median Percentile | 95% CIs | Max Percentile | Nights Recorded | Reference Range |
|------------------|----------------------------------|-------------------|-------------|----------------|-----------------|-----------------|
| Loc1 | | | 25 | | | |
| Euchanhead, Loc2 | <i>Myotis</i> | 1 | 1 - 1 | 1 | 3 | 1596 |
| Euchanhead, Loc2 | <i>Nyctalus</i> | 20 | 1 - 38 | 38 | 4 | 1579 |
| Euchanhead, Loc2 | <i>Pipistrellus</i> | 100 | 0 | 100 | 1 | 5353 |
| Euchanhead, Loc2 | <i>Pipistrellus pipistrellus</i> | 82 | 63.5 - 88.5 | 98 | 23 | 3160 |
| Euchanhead, Loc2 | <i>Pipistrellus pygmaeus</i> | 86 | 49 - 89.5 | 100 | 22 | 4150 |
| Euchanhead, Loc3 | <i>Myotis</i> | 1 | 0 | 1 | 1 | 1596 |
| Euchanhead, Loc3 | <i>Nyctalus</i> | 1 | 1 - 19.5 | 38 | 7 | 1579 |
| Euchanhead, Loc3 | <i>Pipistrellus</i> | 77 | 53 - 89 | 94 | 6 | 4893 |
| Euchanhead, Loc3 | <i>Pipistrellus pipistrellus</i> | 51 | 27 - 57 | 89 | 20 | 2888 |
| Euchanhead, Loc3 | <i>Pipistrellus pygmaeus</i> | 38 | 19.5 - 53 | 91 | 20 | 3891 |
| Euchanhead, Loc3 | <i>Plecotus auritus</i> | 6 | 6 - 6 | 6 | 3 | 108.3 |
| Euchanhead, Loc4 | <i>Myotis</i> | 6 | 3.5 - 42 | 78 | 11 | 1249 |
| Euchanhead, Loc4 | <i>Nyctalus</i> | 1 | 1 - 1 | 1 | 2 | 1579 |
| Euchanhead, Loc4 | <i>Pipistrellus</i> | 81 | 0 | 81 | 1 | 5353 |
| Euchanhead, Loc4 | <i>Pipistrellus pipistrellus</i> | 38 | 19.5 - 57 | 92 | 18 | 3176 |
| Euchanhead, Loc4 | <i>Pipistrellus pygmaeus</i> | 38 | 6 - 64.5 | 82 | 9 | 4102 |
| Euchanhead, Loc4 | <i>Plecotus auritus</i> | 6 | 6 - 49 | 82 | 11 | 80 |
| Euchanhead, Loc5 | <i>Myotis</i> | 1 | 1 - 27.5 | 64 | 13 | 1156 |
| Euchanhead, Loc5 | <i>Nyctalus</i> | 6 | 1 - 67 | 67 | 3 | 1228 |
| Euchanhead, Loc5 | <i>Pipistrellus</i> | 74 | 64 - 79 | 79 | 4 | 4663 |

| Location | Species/Species Group | Median Percentile | 95% CIs | Max Percentile | Nights Recorded | Reference Range |
|------------------|----------------------------------|-------------------|-------------|----------------|-----------------|-----------------|
| Euchanhead, Loc5 | <i>Pipistrellus pipistrellus</i> | 49 | 27.5 - 56 | 74 | 22 | 2947 |
| Euchanhead, Loc5 | <i>Pipistrellus pygmaeus</i> | 49 | 25 - 56 | 76 | 14 | 4027 |
| Euchanhead, Loc5 | <i>Plecotus auritus</i> | 6 | 1 - 27.5 | 49 | 5 | 114 |
| Euchanhead, Loc6 | <i>Pipistrellus pipistrellus</i> | 1 | 1 - 44.5 | 88 | 11 | 3536 |
| Euchanhead, Loc6 | <i>Pipistrellus pygmaeus</i> | 1 | 1 - 1 | 67 | 3 | 4366 |
| Euchanhead, Loc7 | <i>Nyctalus</i> | 1 | 0 | 1 | 1 | 1579 |
| Euchanhead, Loc7 | <i>Pipistrellus pipistrellus</i> | 1 | 0 | 1 | 1 | 3536 |
| Euchanhead, Loc9 | <i>Myotis</i> | 1 | 1 - 34 | 67 | 10 | 1596 |
| Euchanhead, Loc9 | <i>Nyctalus</i> | 1 | 0 | 1 | 1 | 1579 |
| Euchanhead, Loc9 | <i>Pipistrellus pipistrellus</i> | 1 | 1 - 1 | 6 | 4 | 2996 |
| Euchanhead, Loc9 | <i>Pipistrellus pygmaeus</i> | 38 | 19.5 - 45.5 | 84 | 21 | 4253 |

Figures

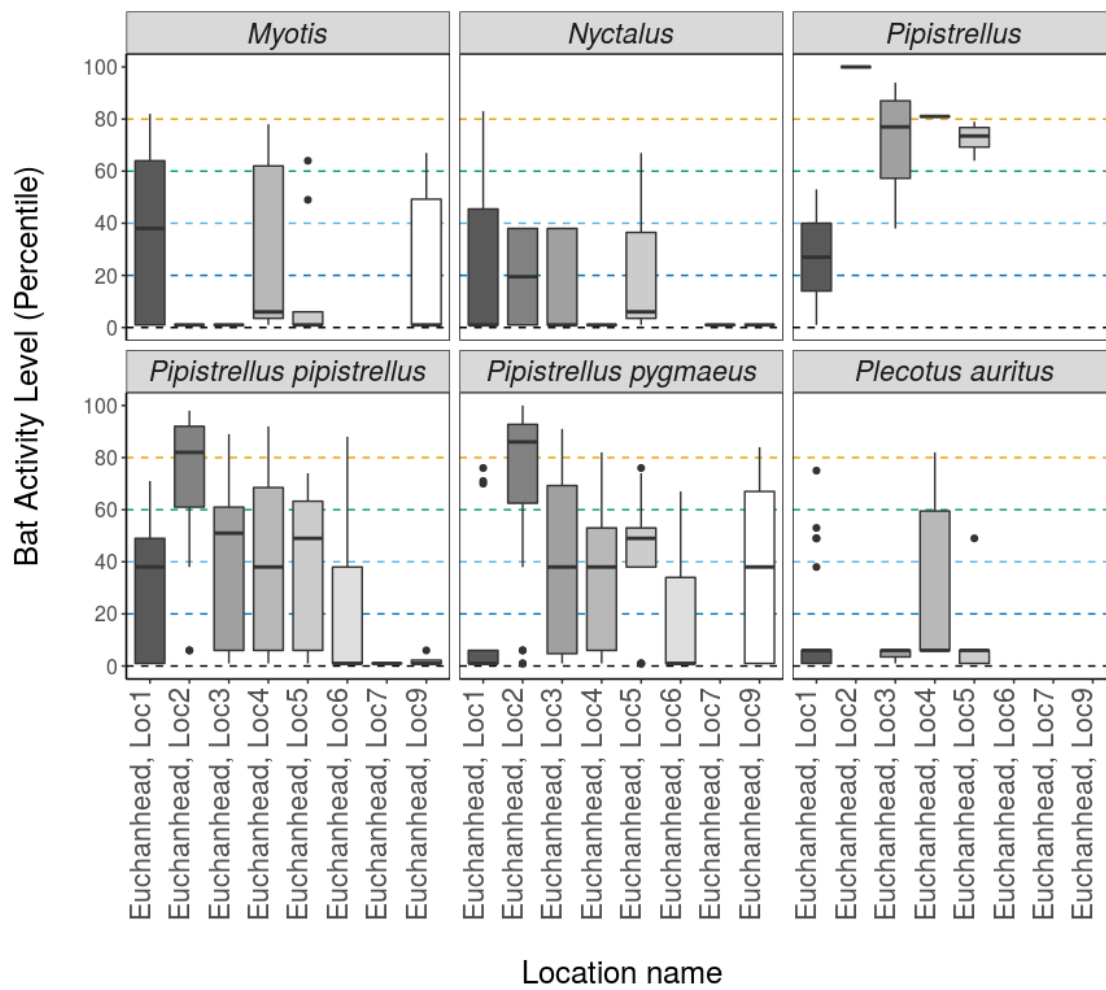
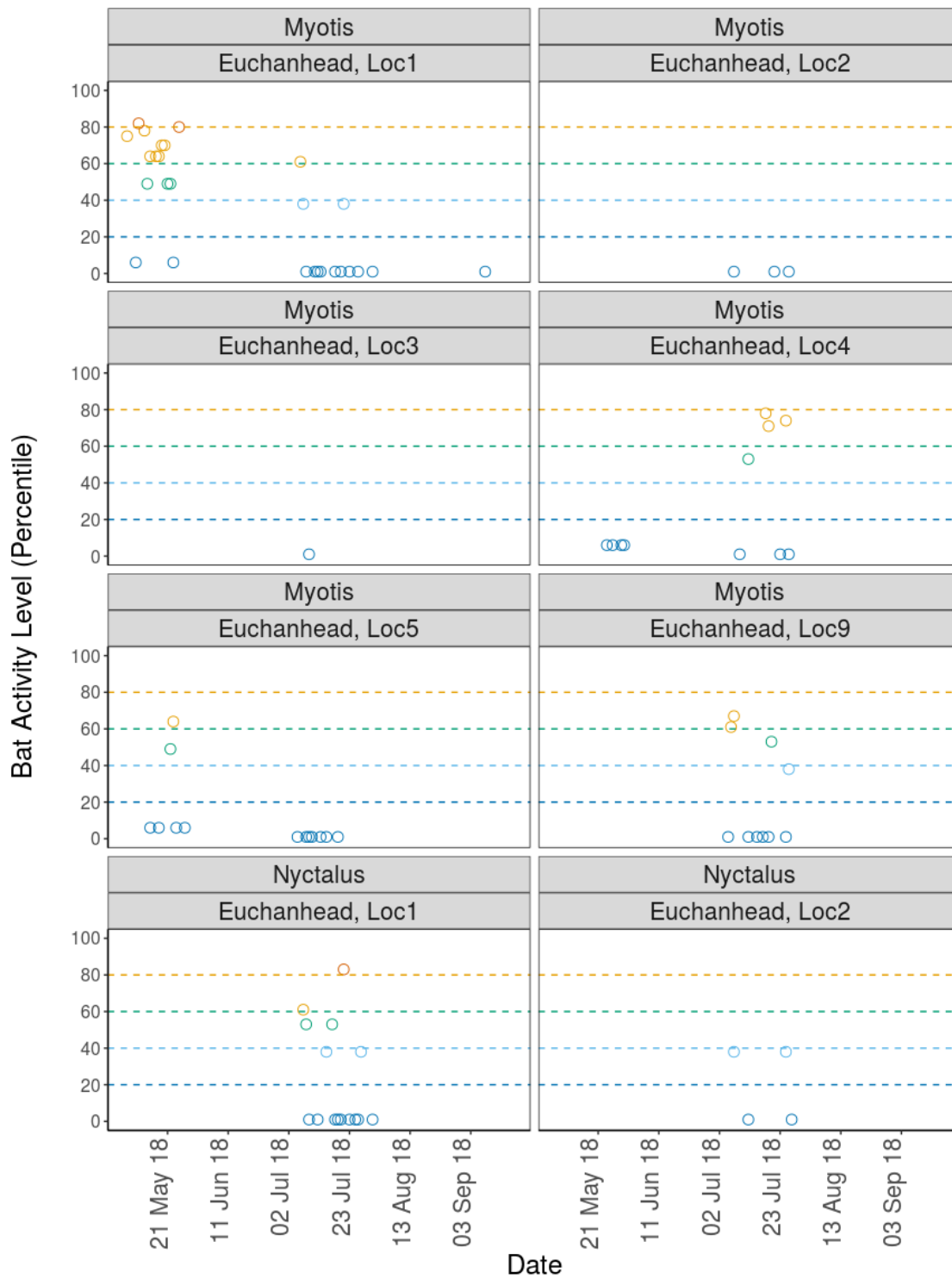
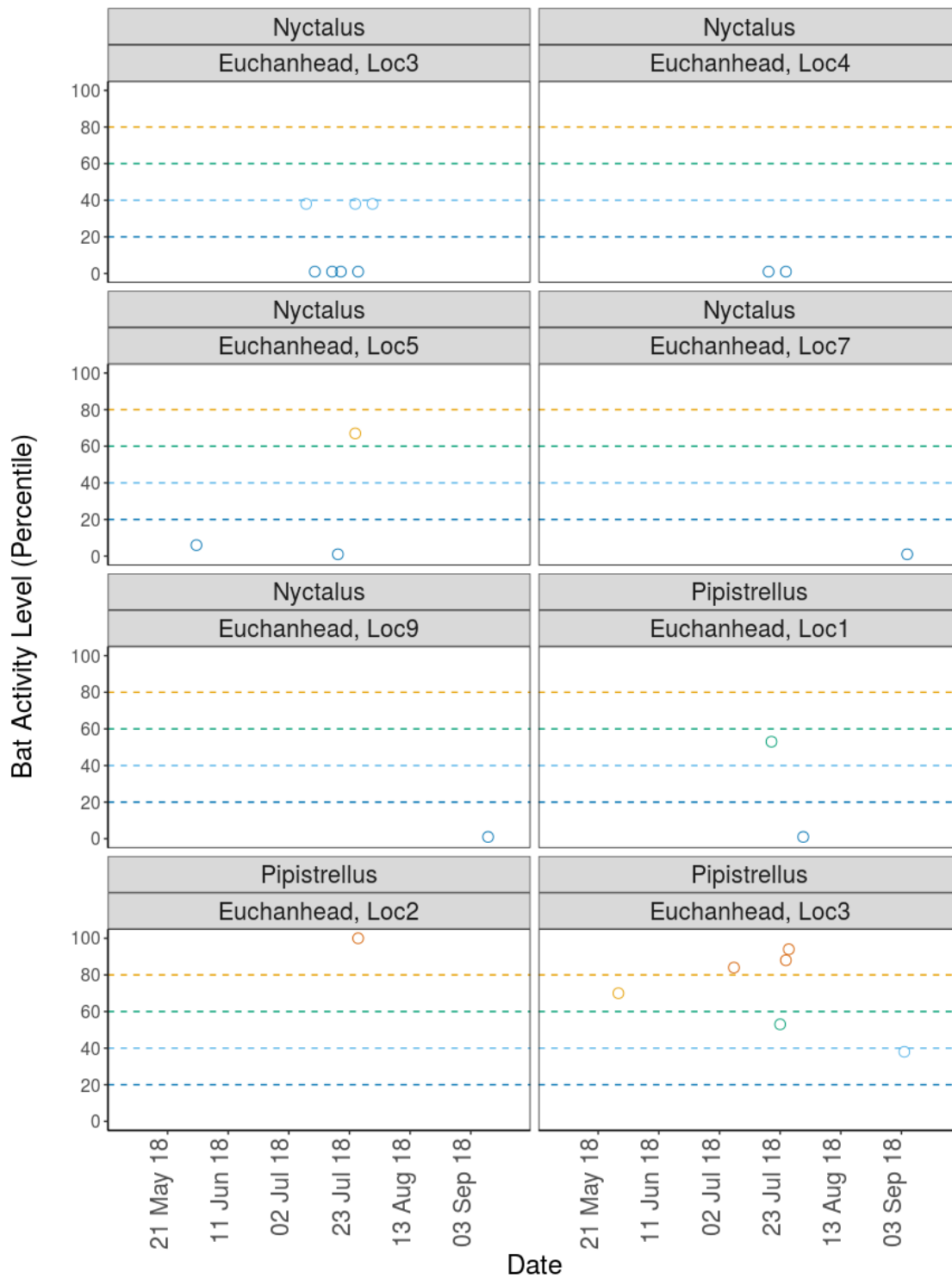
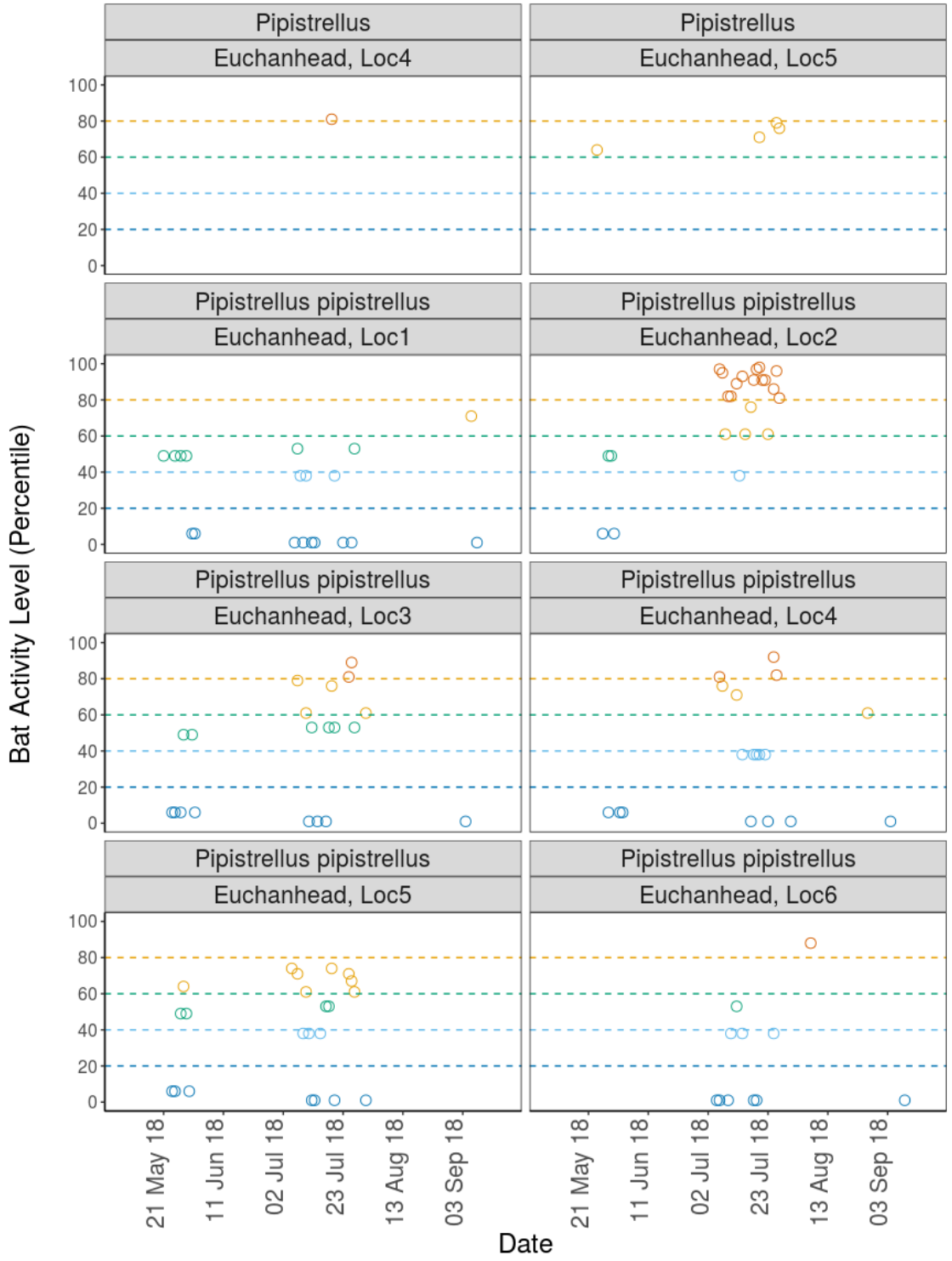
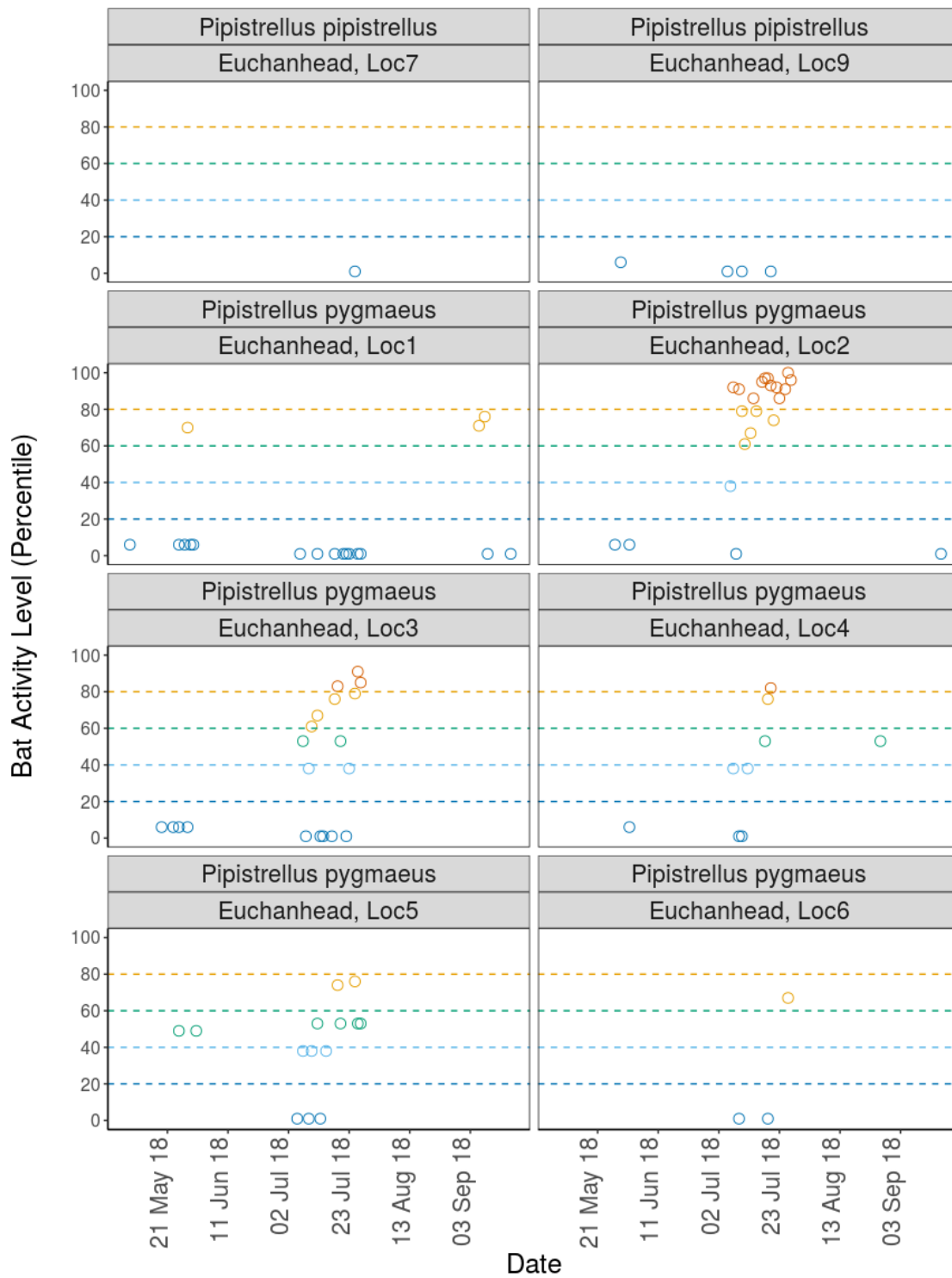


Figure 1. Differences in activity between static detector locations, split by species and location. The centre line indicates the median activity level whereas the box represents the interquartile range (the spread of the middle 50% of nights of activity)









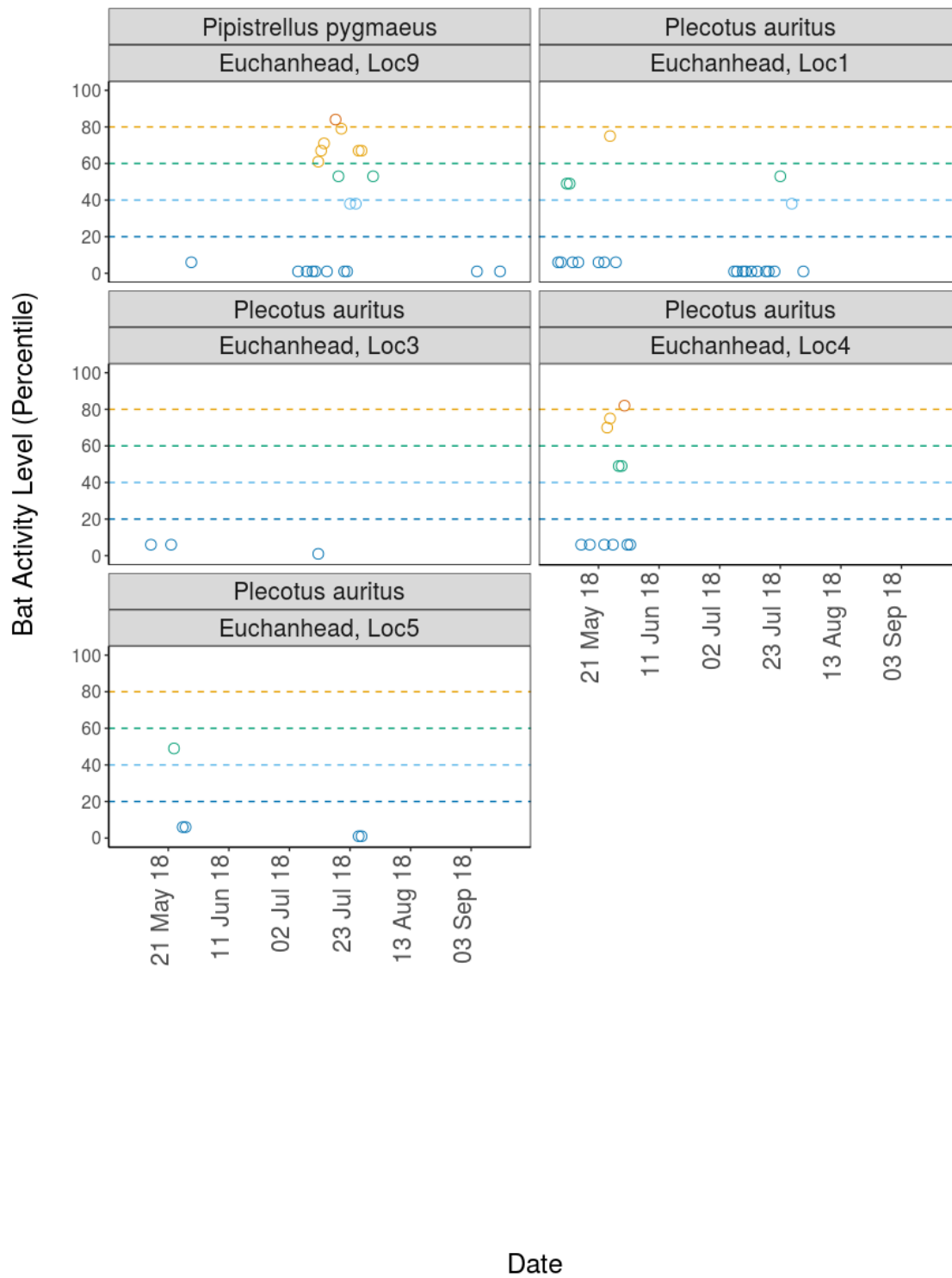


Figure 2. The activity level (percentile) of bats recorded across each night of the bat survey, split by location and species.

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