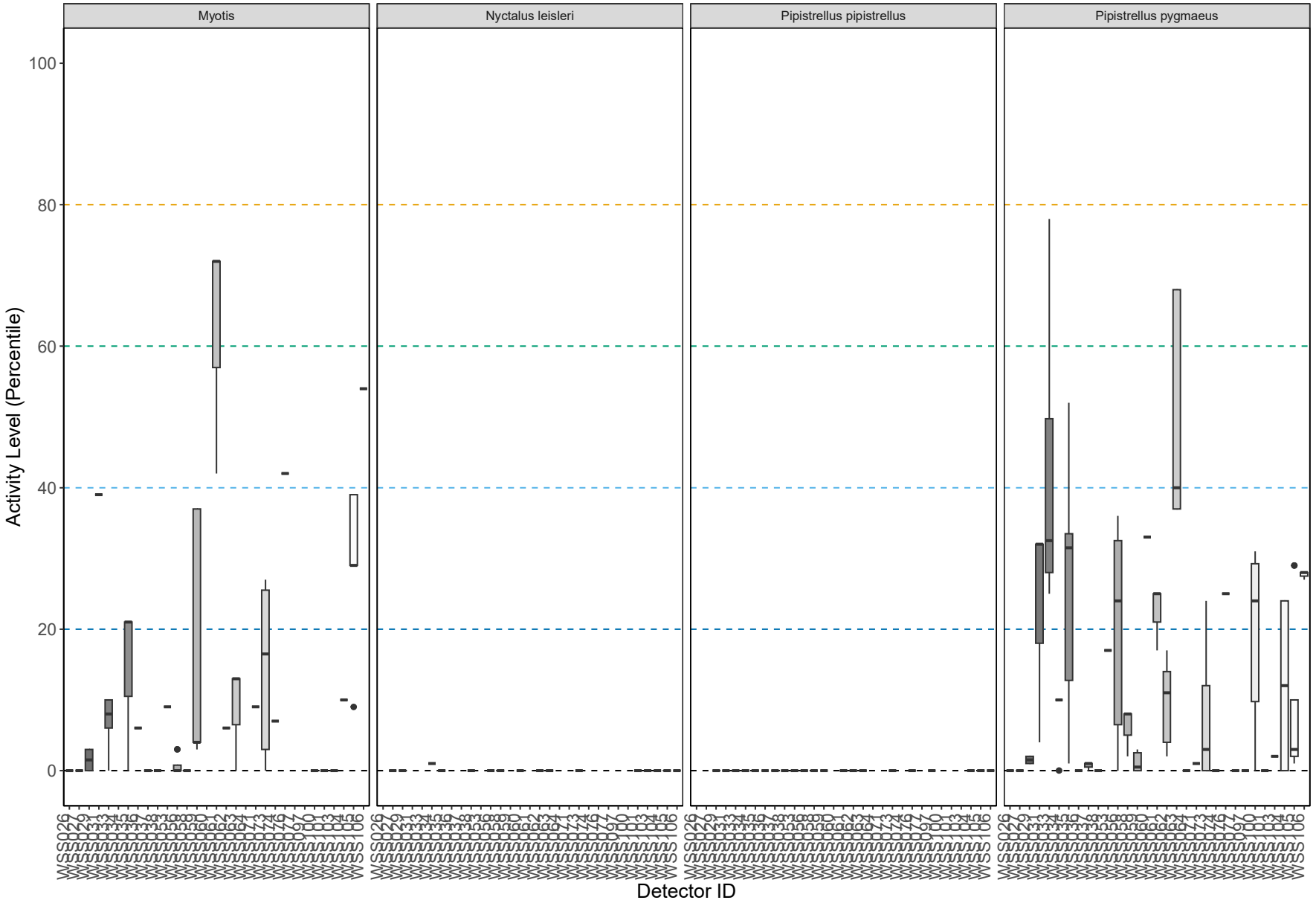

Myotis
Nyctalus leisleri
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Activity Level (Percentile)
100
80
60
40
20
0
Detector ID

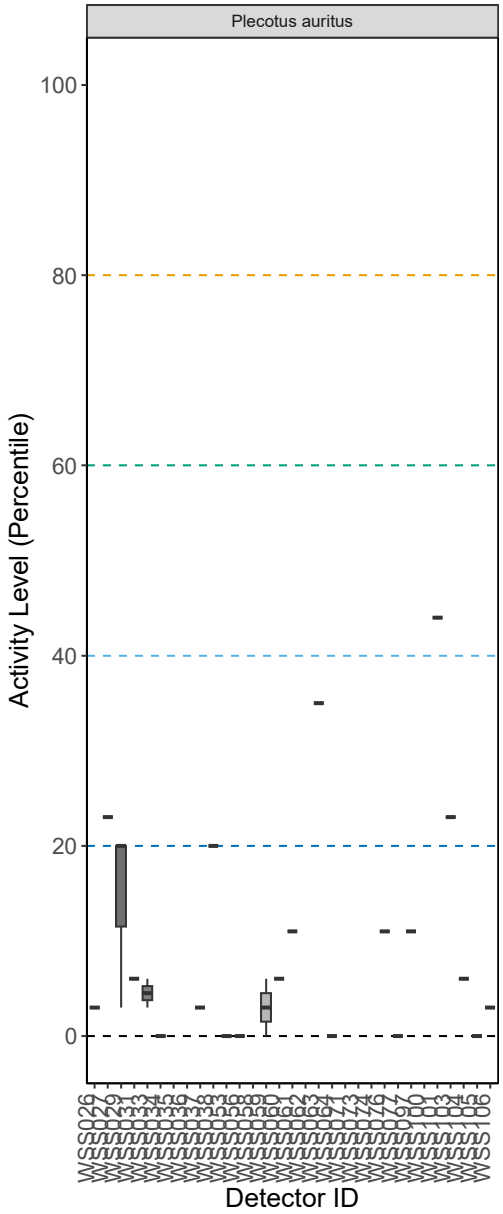
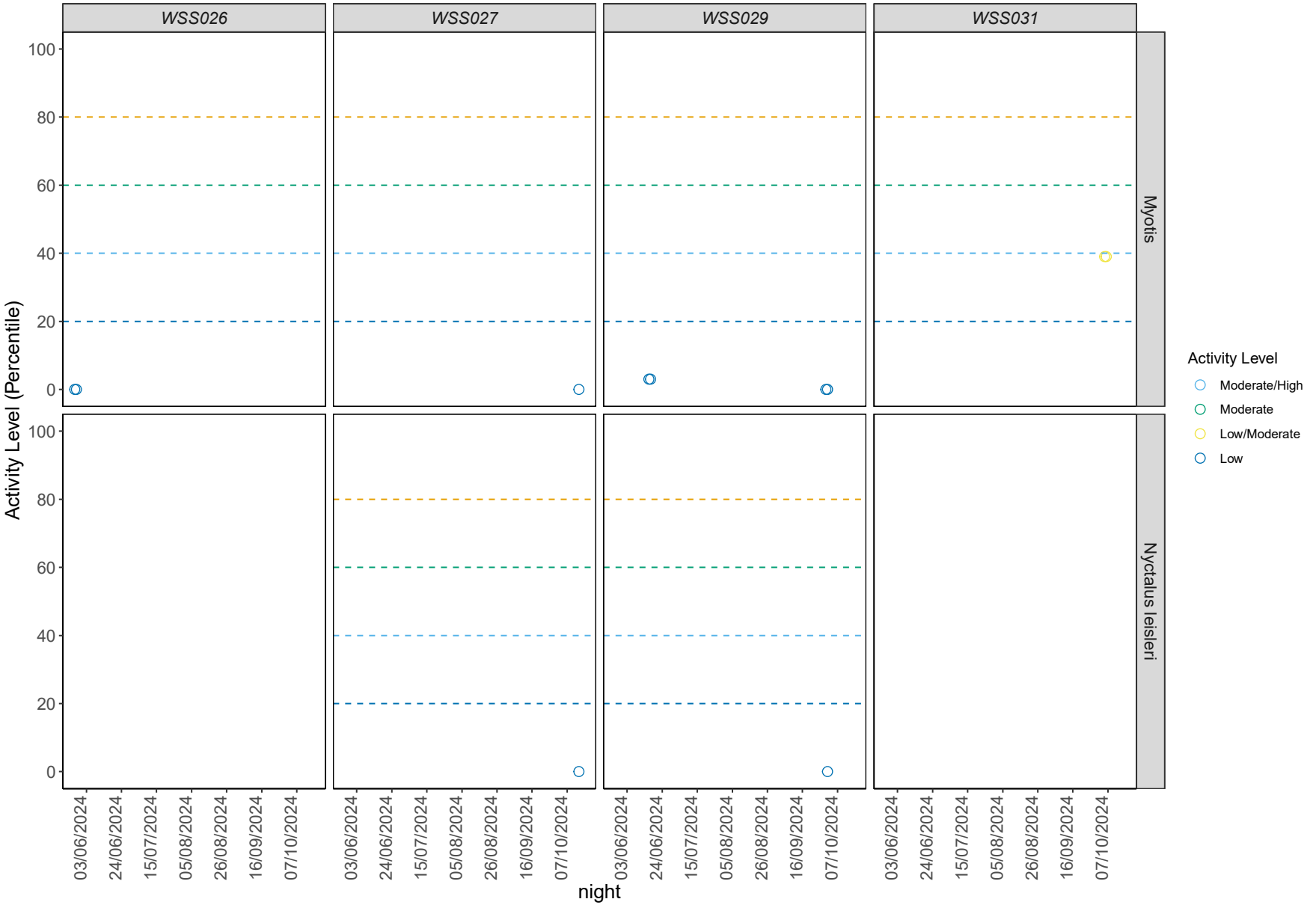
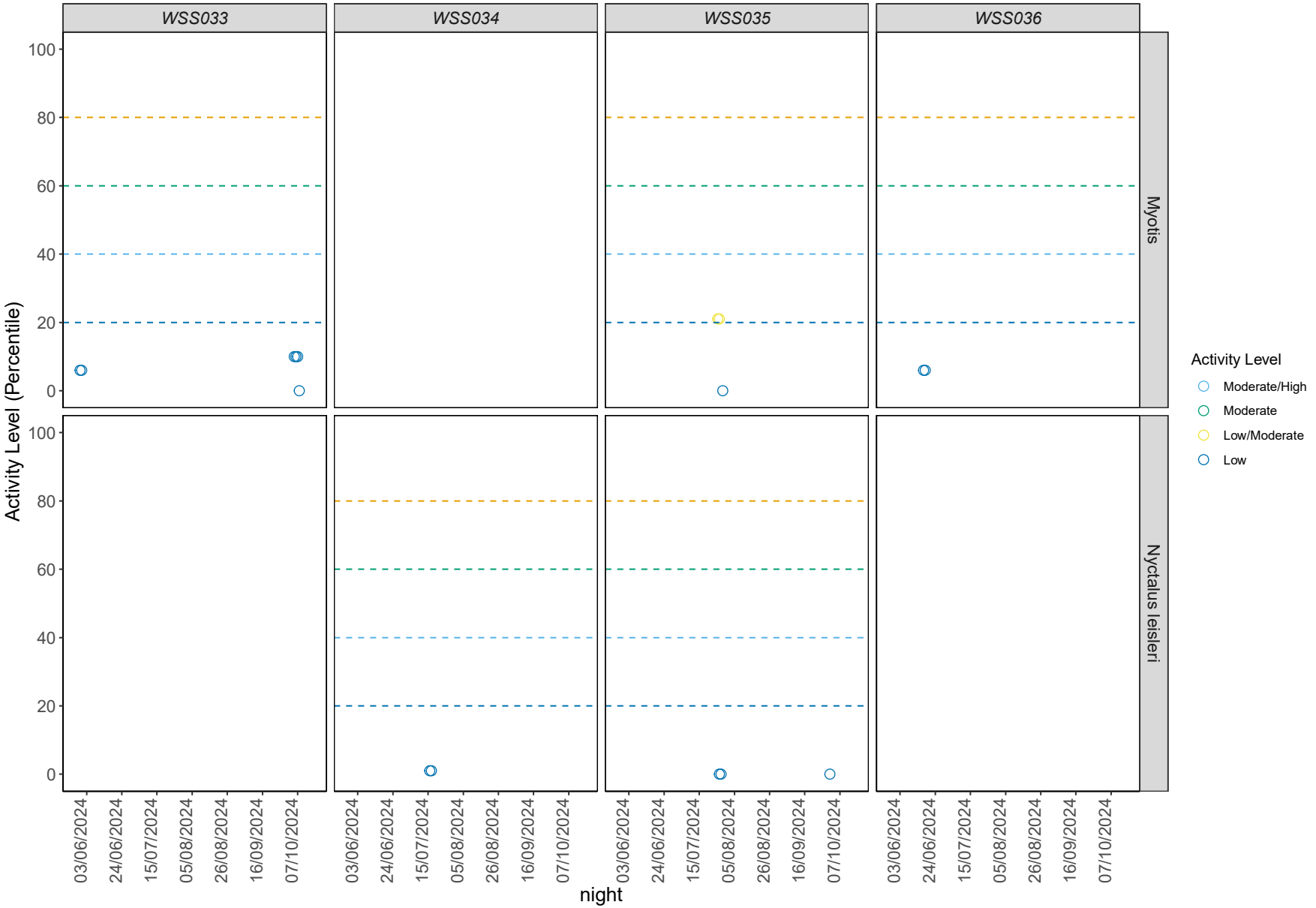
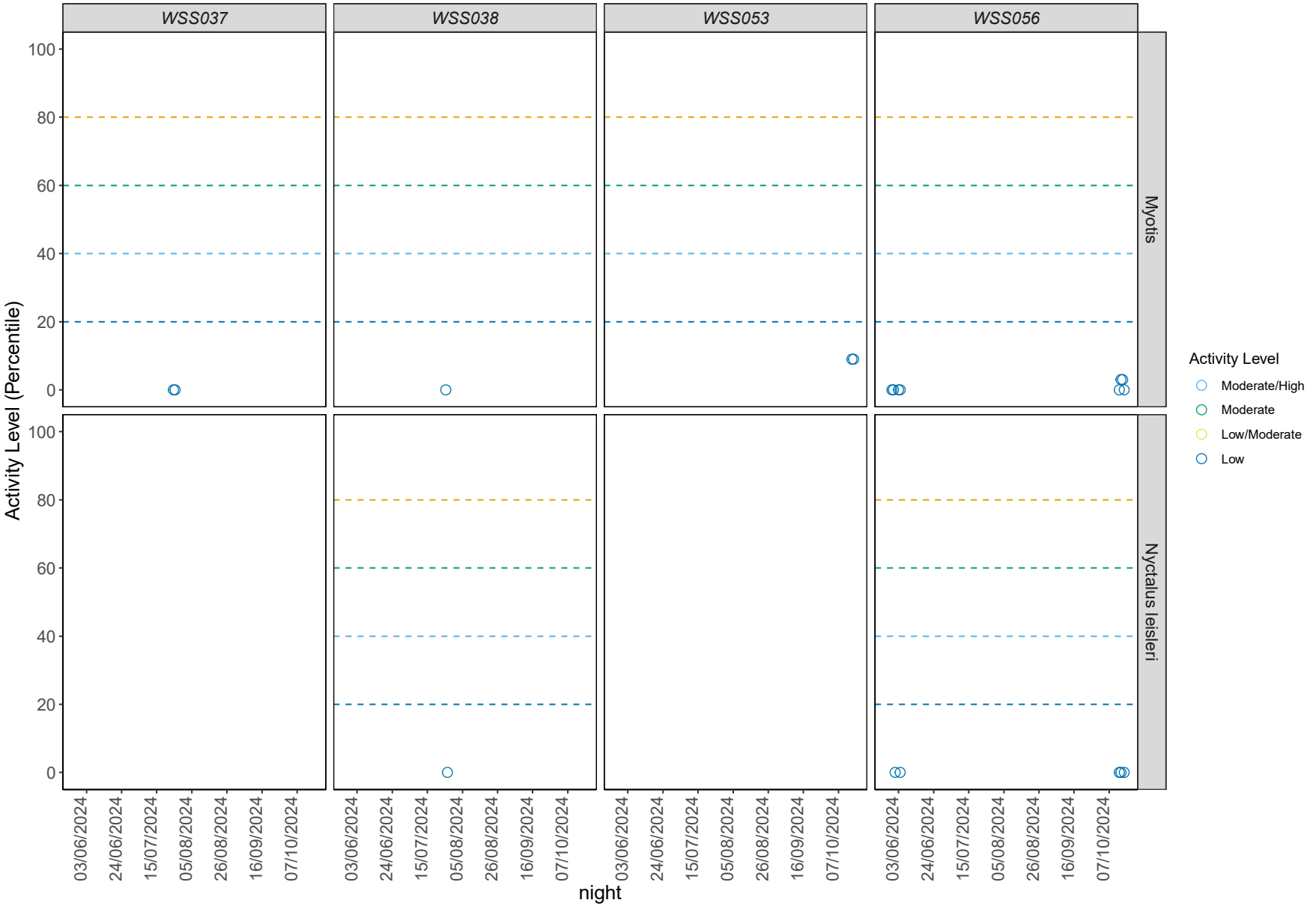
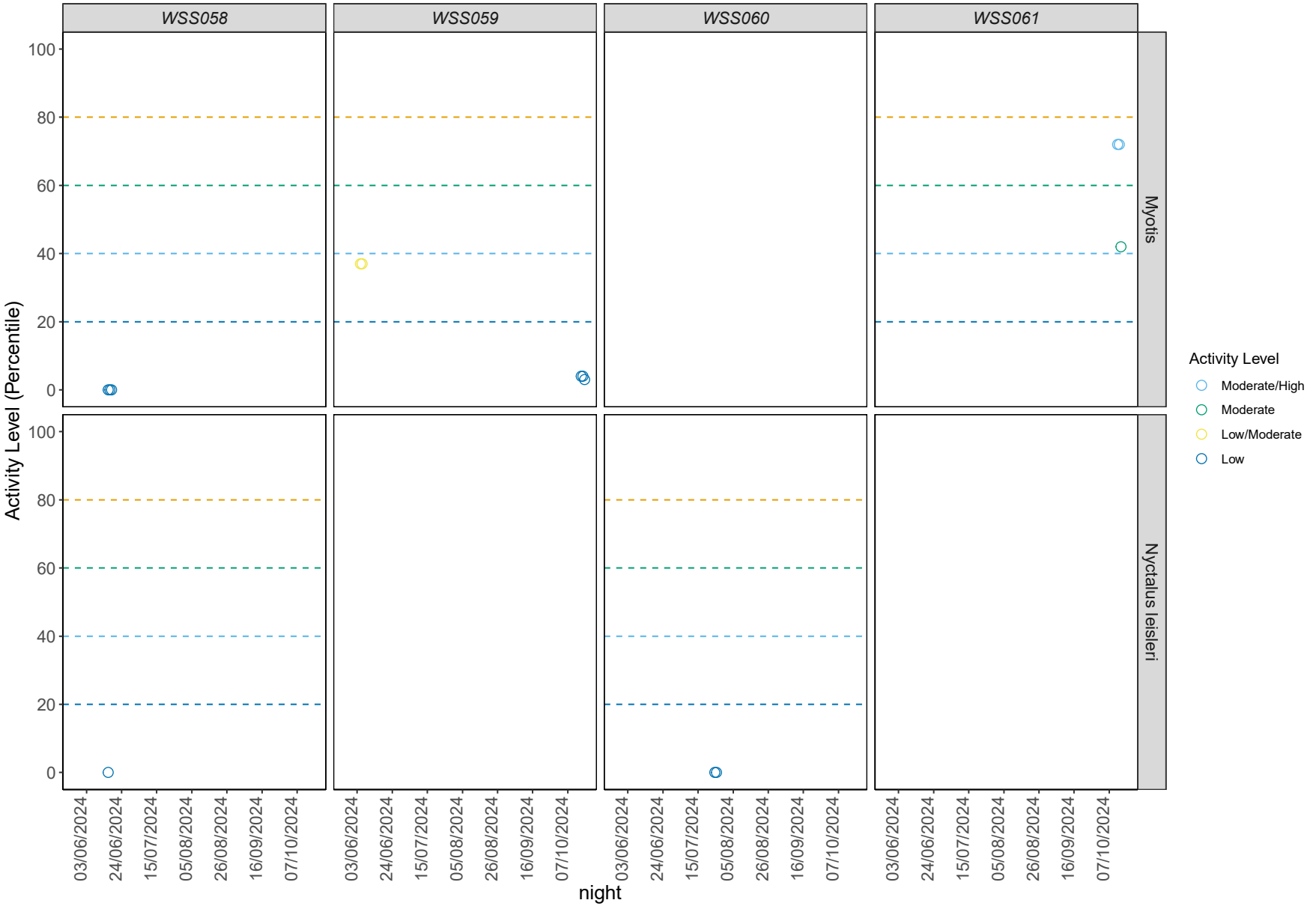

Plecotus auritus
100
80
60
40
20
0
Activity Level (Percentile)
Detector ID

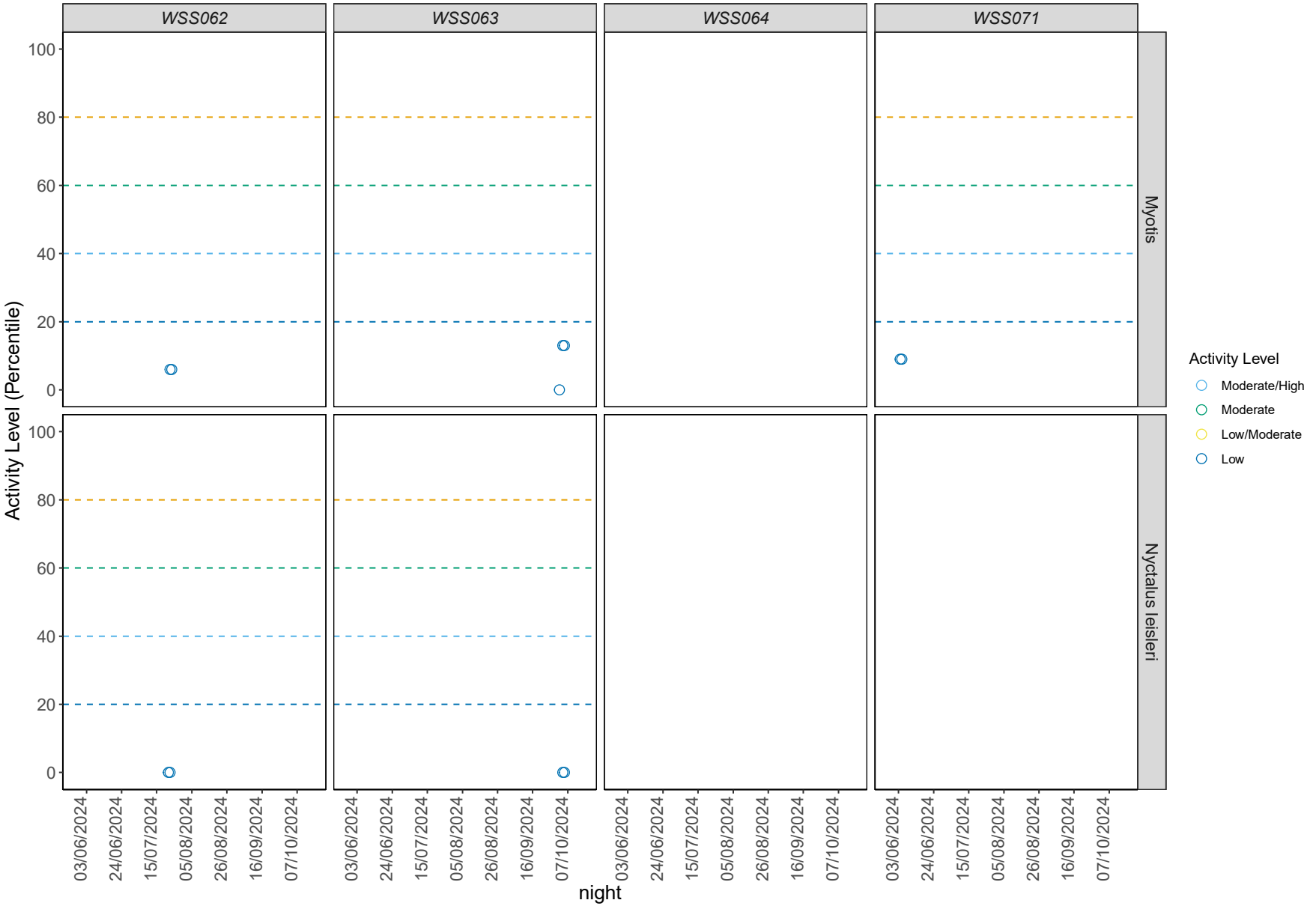
Figure 3. The activity level (percentile) of bats recorded across each night of the bat survey.

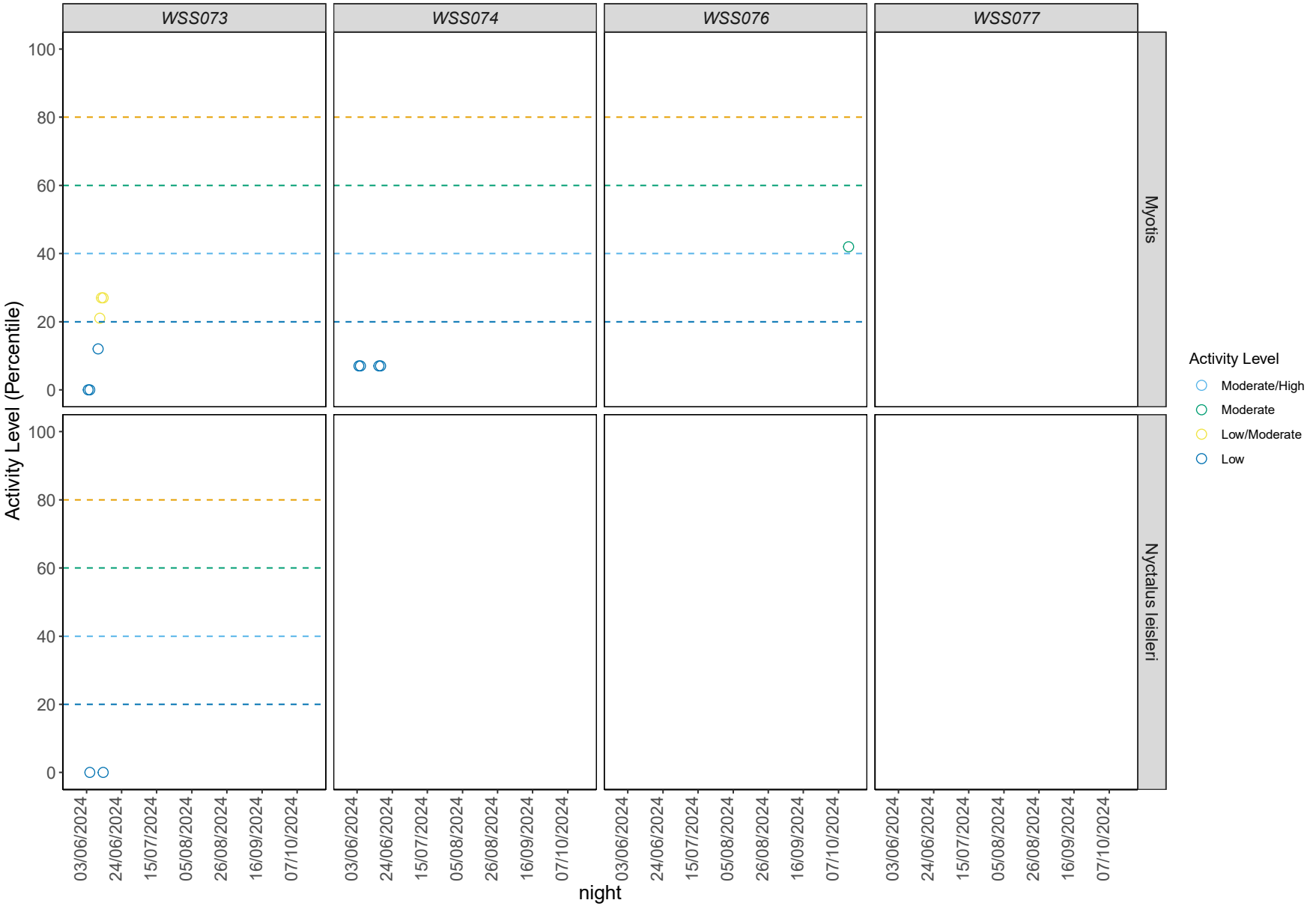

WSS026
WSS027
WSS029
WSS031
Myotis
Nyctalus leisleri
Activity Level (Percentile)
100
80
60
40
20
0
03/06/2024
24/06/2024
15/07/2024
05/08/2024
26/08/2024
16/09/2024
07/10/2024
night
Activity Level
Moderate/High
Moderate
Low/Moderate
Low

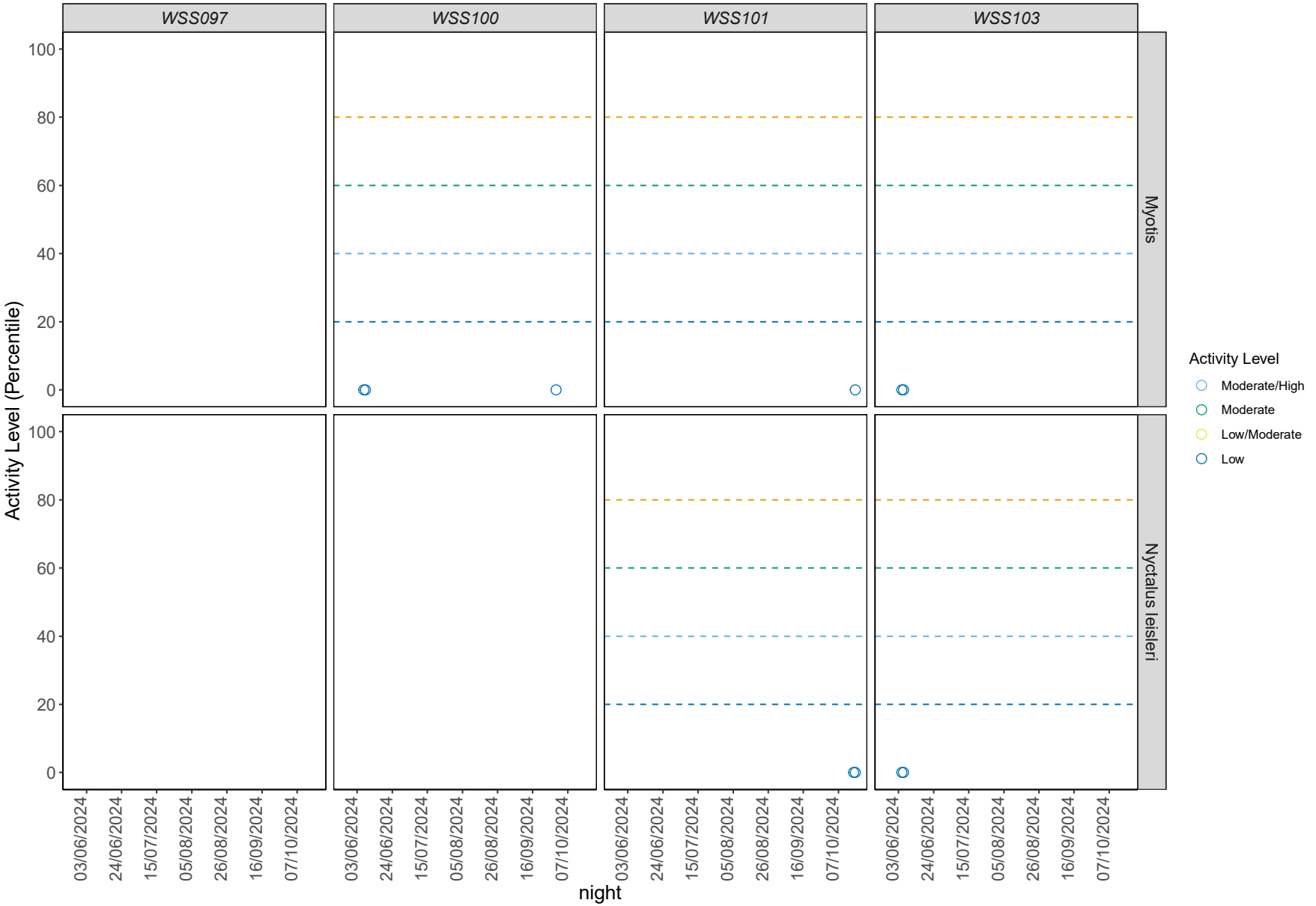

WSS033
WSS034
WSS035
WSS036
Myotis
Nyctalus leisleri
Activity Level (Percentile)
100
80
60
40
20
0
03/06/2024
24/06/2024
15/07/2024
05/08/2024
26/08/2024
16/09/2024
07/10/2024
night
Activity Level
Moderate/High
Moderate
Low/Moderate
Low

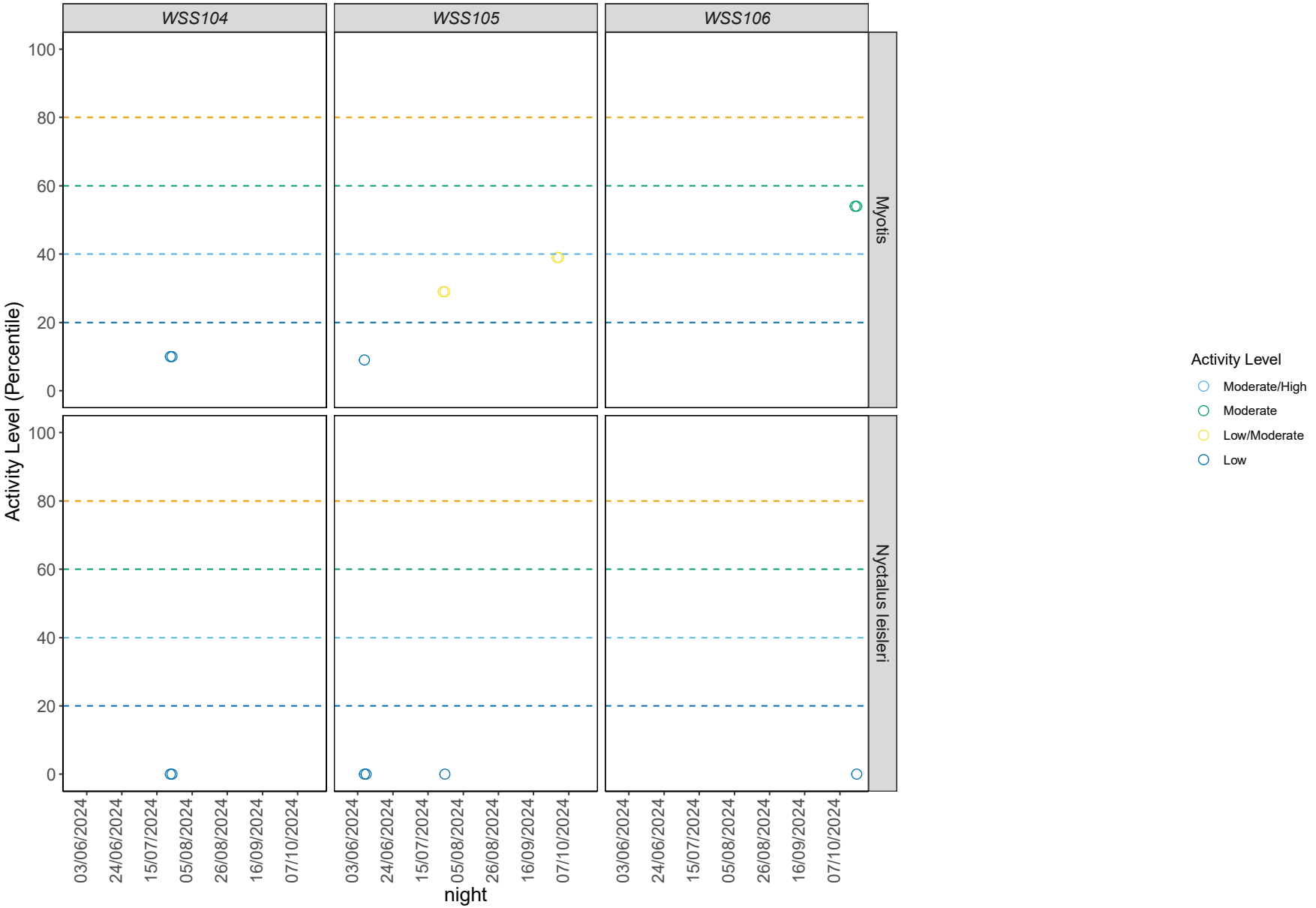

WSS037
WSS038
WSS053
WSS056
Myotis
Nyctalus leisleri
Activity Level (Percentile)
100
80
60
40
20
0
03/06/2024
24/06/2024
15/07/2024
05/08/2024
26/08/2024
16/09/2024
07/10/2024
night
Activity Level
Moderate/High
Moderate
Low/Moderate
Low

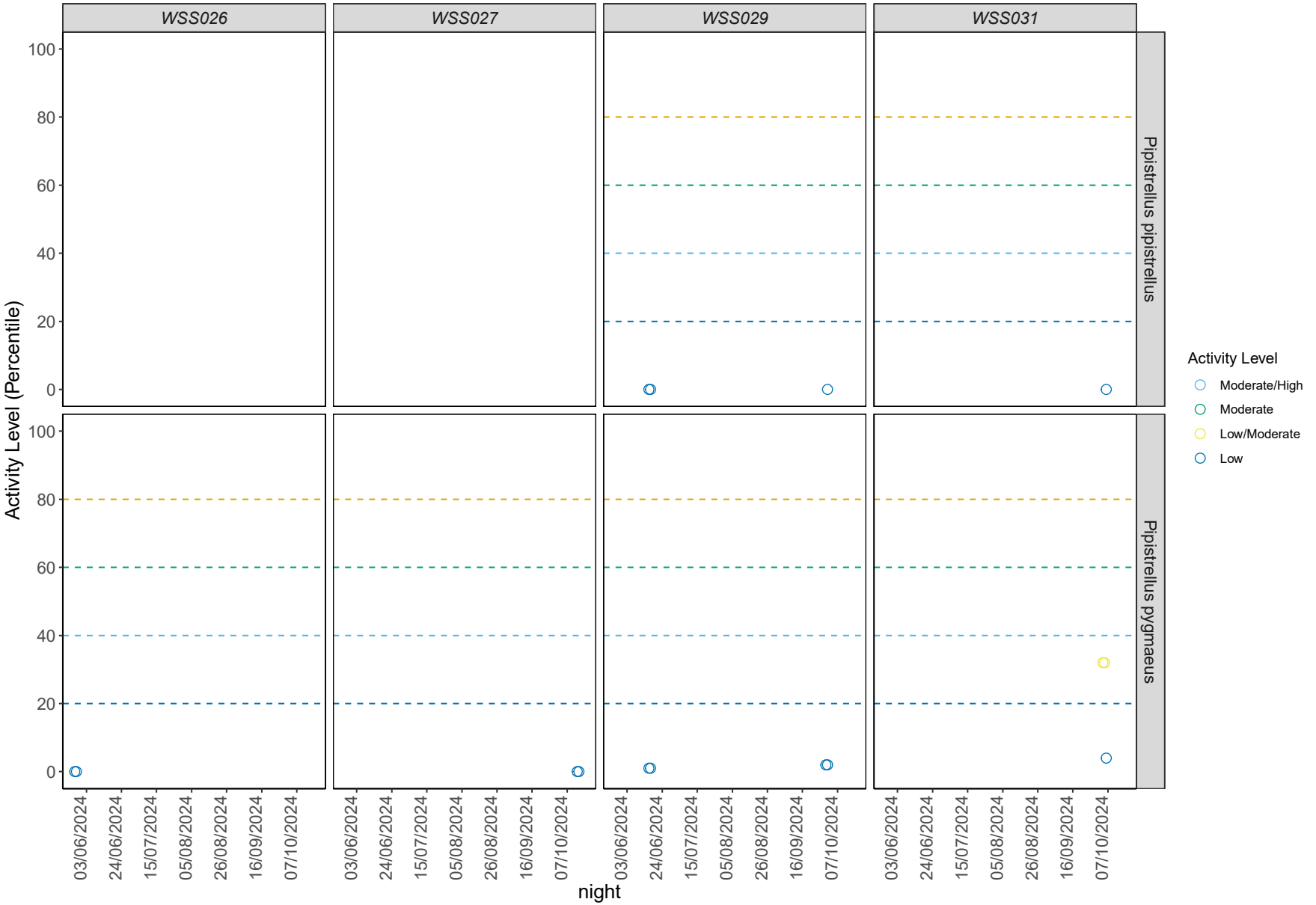

WSS058
WSS059
WSS060
WSS061
Myotis
Nyctalus leisleri
Activity Level (Percentile)
100
80
60
40
20
0
03/06/2024
24/06/2024
15/07/2024
05/08/2024
26/08/2024
16/09/2024
07/10/2024
night
Activity Level
Moderate/High
Moderate
Low/Moderate
Low

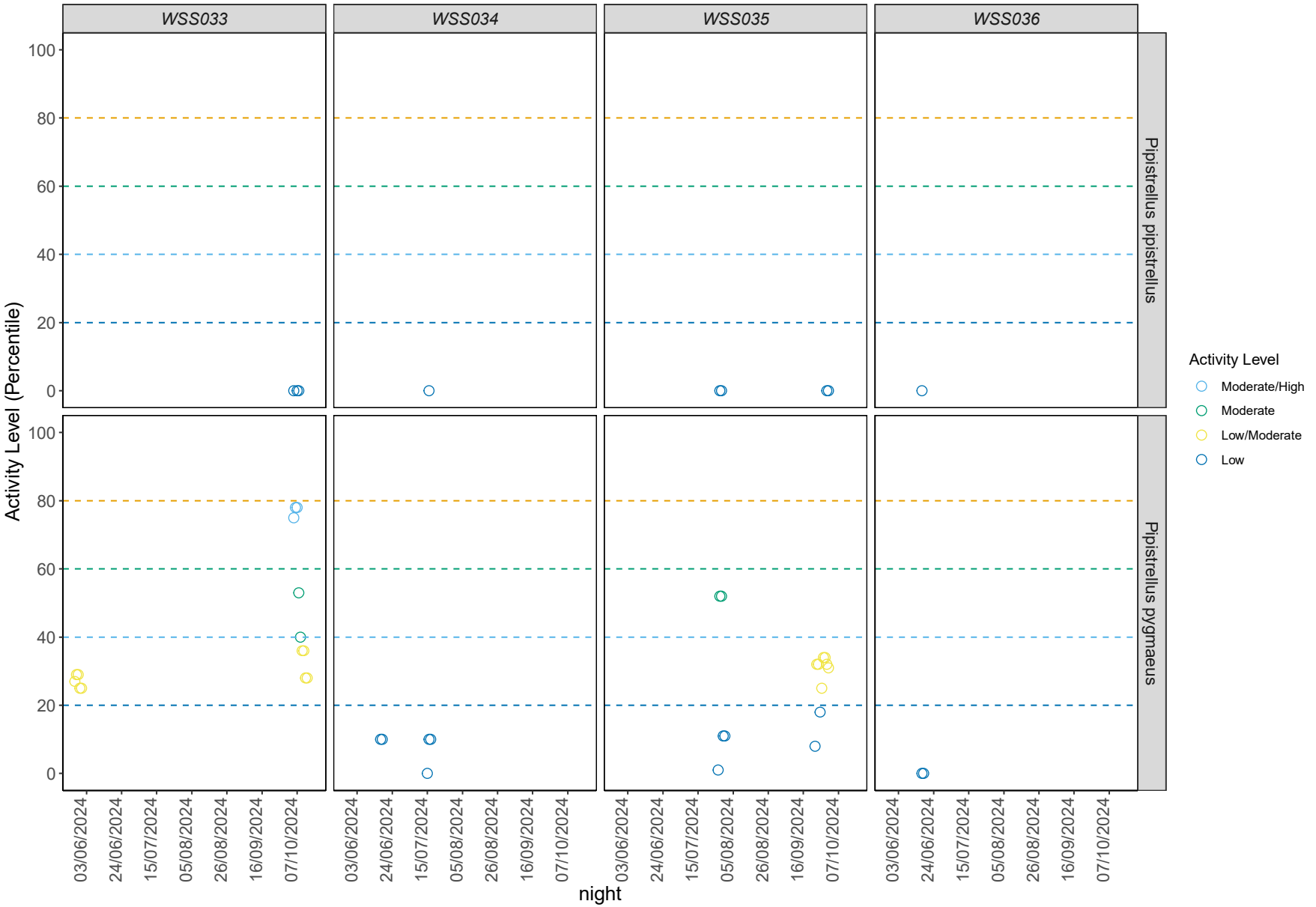

WSS062
WSS063
WSS064
WSS071
Myotis
Nyctalus leisleri
Activity Level (Percentile)
100
80
60
40
20
0
03/06/2024
24/06/2024
15/07/2024
05/08/2024
26/08/2024
16/09/2024
07/10/2024
night
Activity Level
Moderate/High
Moderate
Low/Moderate
Low

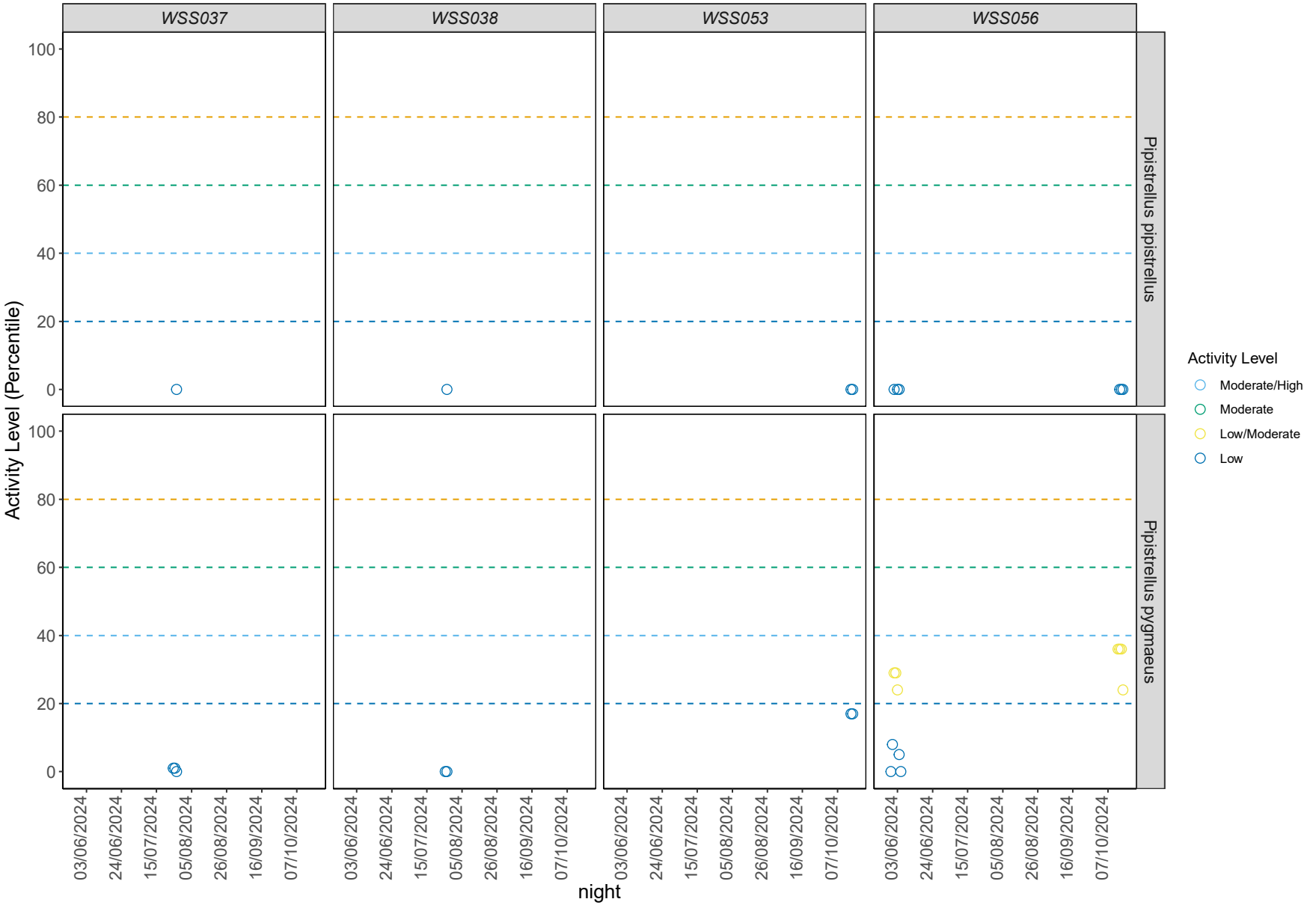

WSS073
WSS074
WSS076
WSS077
Myotis
Nyctalus leisleri
Activity Level (Percentile)
100
80
60
40
20
0
03/06/2024
24/06/2024
15/07/2024
05/08/2024
26/08/2024
16/09/2024
07/10/2024
night
Activity Level
Moderate/High
Moderate
Low/Moderate
Low

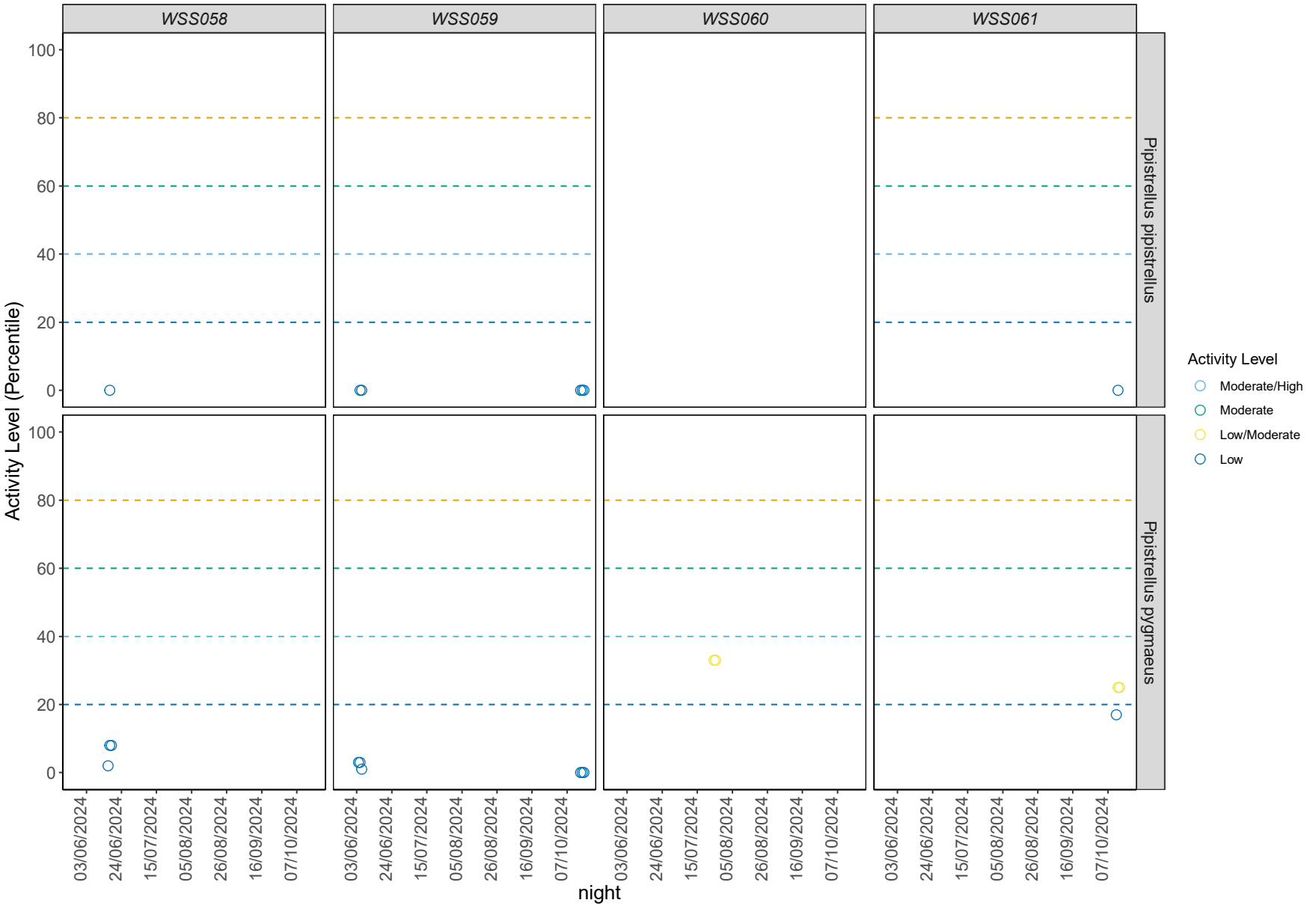

WSS097
WSS100
WSS101
WSS103
Myotis
Nyctalus leisleri
Activity Level (Percentile)
100
80
60
40
20
0
03/06/2024
24/06/2024
15/07/2024
05/08/2024
26/08/2024
16/09/2024
07/10/2024
night
Activity Level
Moderate/High
Moderate
Low/Moderate
Low

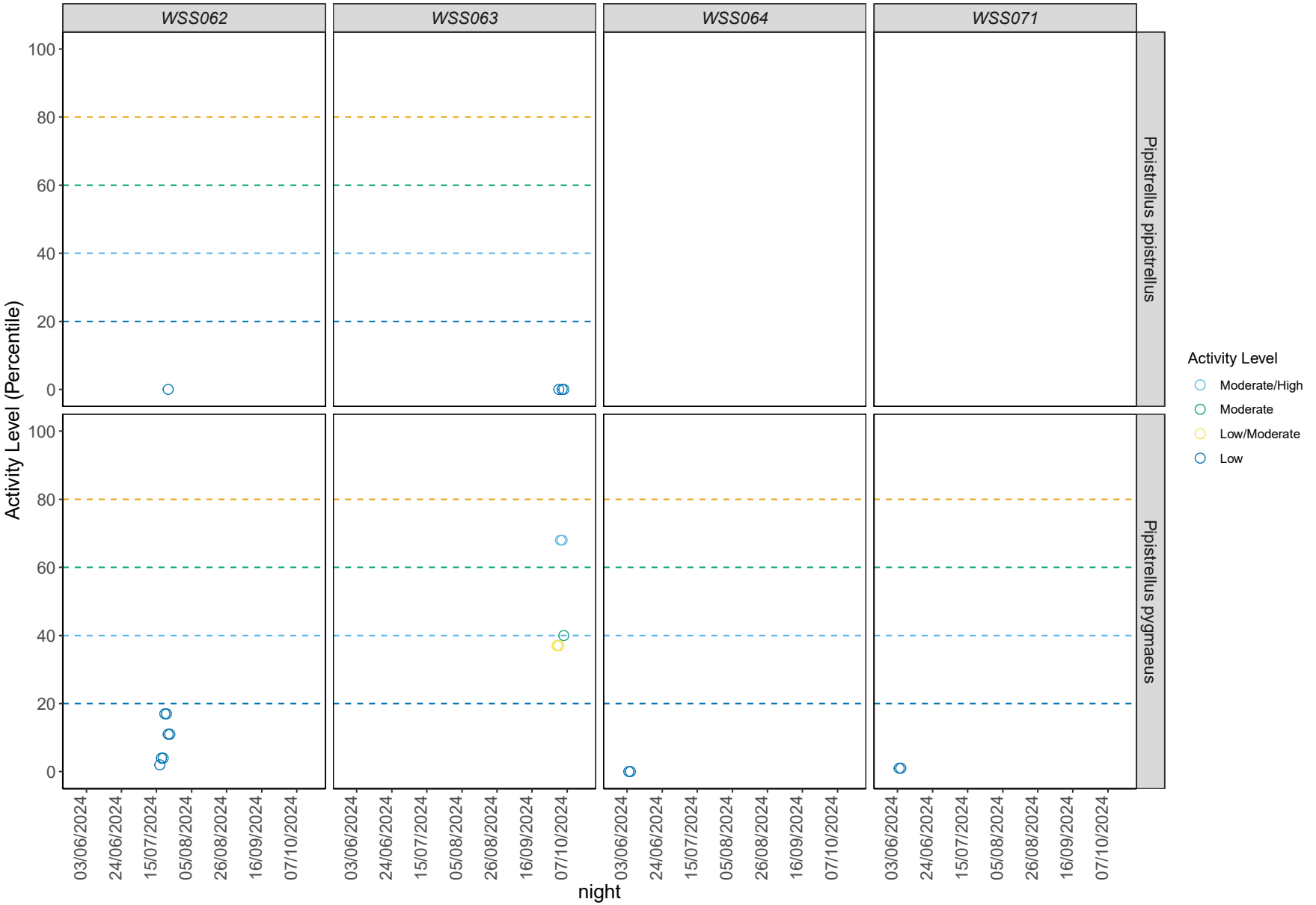

WSS104
WSS105
WSS106
Myotis
Nyctalus leisleri
Activity Level (Percentile)
100
80
60
40
20
0
03/06/2024
24/06/2024
15/07/2024
05/08/2024
26/08/2024
16/09/2024
07/10/2024
night
Activity Level
Moderate/High
Moderate
Low/Moderate
Low

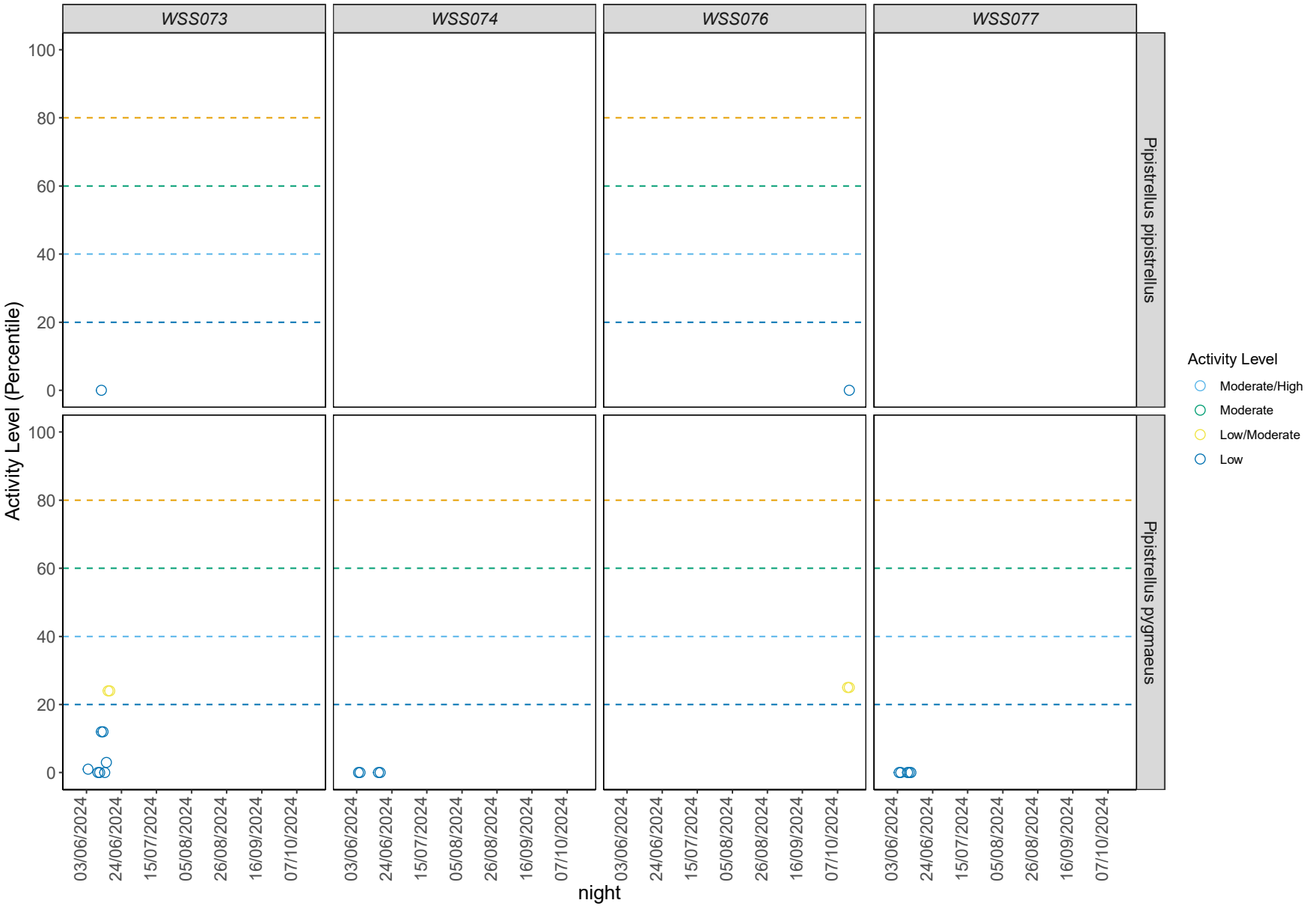

WSS026
WSS027
WSS029
WSS031
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Activity Level (Percentile)
100
80
60
40
20
0
03/06/2024
24/06/2024
15/07/2024
05/08/2024
26/08/2024
16/09/2024
07/10/2024
night
Activity Level
Moderate/High
Moderate
Low/Moderate
Low

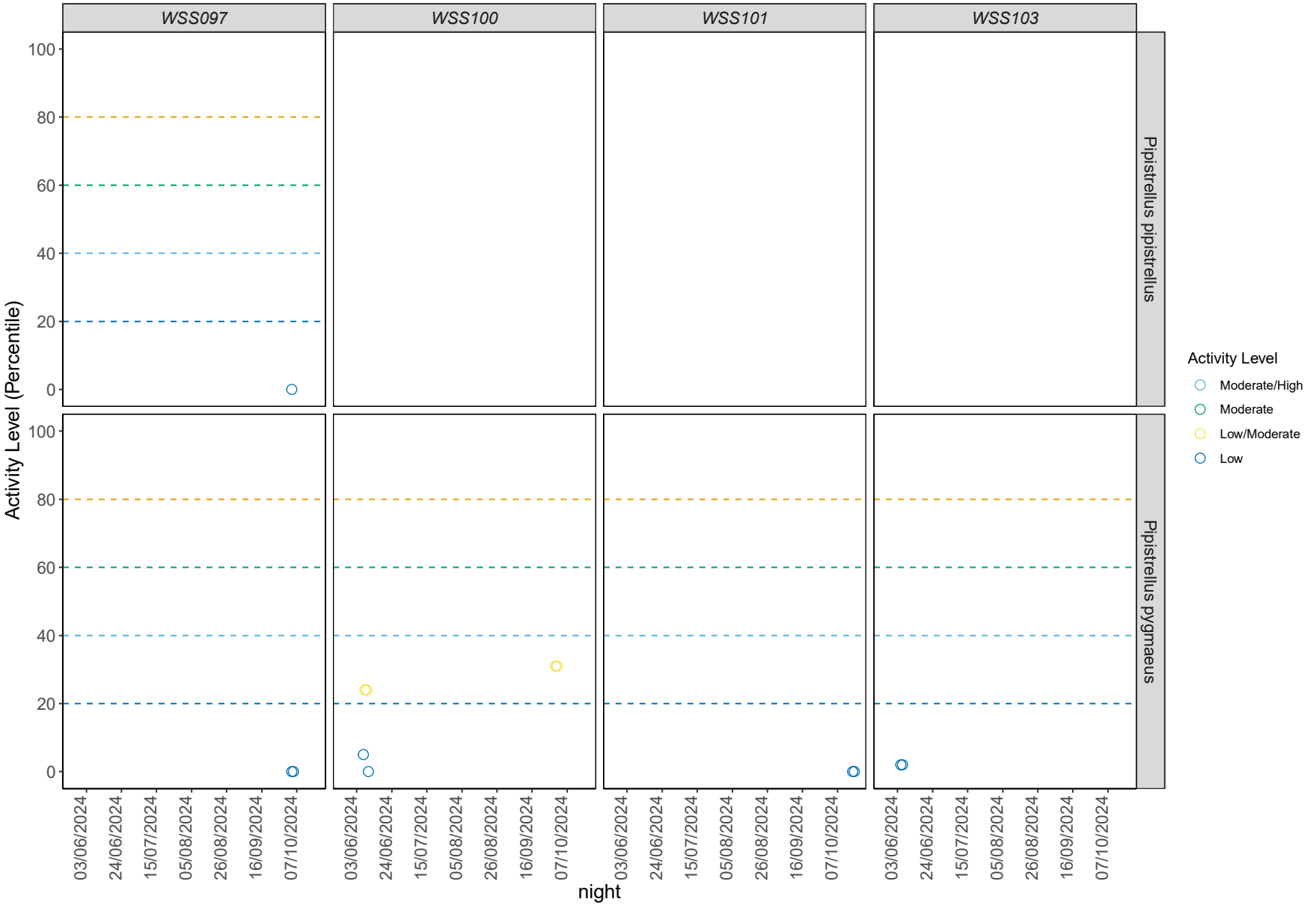

WSS033
WSS034
WSS035
WSS036
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Activity Level (Percentile)
100
80
60
40
20
0
03/06/2024
24/06/2024
15/07/2024
05/08/2024
26/08/2024
16/09/2024
07/10/2024
night
Activity Level
Moderate/High
Moderate
Low/Moderate
Low


WSS037
WSS038
WSS053
WSS056
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Activity Level (Percentile)
100
80
60
40
20
0
03/06/2024
24/06/2024
15/07/2024
05/08/2024
26/08/2024
16/09/2024
07/10/2024
night
Activity Level
Moderate/High
Moderate
Low/Moderate
Low


WSS058
WSS059
WSS060
WSS061
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Activity Level (Percentile)
100
80
60
40
20
0
03/06/2024
24/06/2024
15/07/2024
05/08/2024
26/08/2024
16/09/2024
07/10/2024
night
Activity Level
Moderate/High
Moderate
Low/Moderate
Low


WSS062
WSS063
WSS064
WSS071
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Activity Level (Percentile)
100
80
60
40
20
0
03/06/2024
24/06/2024
15/07/2024
05/08/2024
26/08/2024
16/09/2024
07/10/2024
night
Activity Level
Moderate/High
Moderate
Low/Moderate
Low


WSS073
WSS074
WSS076
WSS077
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Activity Level (Percentile)
100
80
60
40
20
0
03/06/2024
24/06/2024
15/07/2024
05/08/2024
26/08/2024
16/09/2024
07/10/2024
night
Activity Level
Moderate/High
Moderate
Low/Moderate
Low


WSS097
WSS100
WSS101
WSS103
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Activity Level (Percentile)
0
20
40
60
80
100
03/06/2024
24/06/2024
15/07/2024
05/08/2024
26/08/2024
16/09/2024
07/10/2024
night
Activity Level
Moderate/High
Moderate
Low/Moderate
Low

Per Detector, Per Month

Table 5. Summary table showing the number of nights recorded bat activity fell into each activity band for each species at each detector during each month.

Detector ID	Species/Species Group	month	Nights of Exceptional Activity	Nights of High Activity	Nights of Moderate/High Activity	Nights of Moderate Activity	Nights of Low/Moderate Activity	Nights of Low Activity
WSS026	Myotis	May	0	0	0	0	0	2
WSS026	Pipistrellus pygmaeus	May	0	0	0	0	0	2
WSS026	Plecotus auritus	May	0	0	0	0	0	1
WSS027	Myotis	Oct	0	0	0	0	0	1
WSS027	Nyctalus leisleri	Oct	0	0	0	0	0	1
WSS027	Pipistrellus pygmaeus	Oct	0	0	0	0	0	2
WSS027	Plecotus auritus	Oct	0	0	0	0	2	0
WSS029	Myotis	Jun	0	0	0	0	0	2
WSS029	Myotis	Sep	0	0	0	0	0	1
WSS029	Myotis	Oct	0	0	0	0	0	1
WSS029	Nyctalus leisleri	Oct	0	0	0	0	0	1
WSS029	Pipistrellus pipistrellus	Jun	0	0	0	0	0	2
WSS029	Pipistrellus pipistrellus	Oct	0	0	0	0	0	1
WSS029	Pipistrellus pygmaeus	Jun	0	0	0	0	0	2
WSS029	Pipistrellus pygmaeus	Sep	0	0	0	0	0	1
WSS029	Pipistrellus pygmaeus	Oct	0	0	0	0	0	1
WSS029	Plecotus auritus	Jun	0	0	0	0	0	1
WSS029	Plecotus auritus	Sep	0	0	0	0	1	0
WSS029	Plecotus auritus	Oct	0	0	0	0	1	0
WSS031	Myotis	Oct	0	0	0	0	2	0
WSS031	Pipistrellus pipistrellus	Oct	0	0	0	0	0	1

Detector ID	Species/Species Group	month	Nights of Exceptional Activity	Nights of High Activity	Nights of Moderate/High Activity	Nights of Moderate Activity	Nights of Low/Moderate Activity	Nights of Low Activity
WSS031	Pipistrellus pygmaeus	Oct	0	0	0	0	2	1
WSS031	Plecotus auritus	Oct	0	0	0	0	0	2
WSS033	Myotis	May	0	0	0	0	0	2
WSS033	Myotis	Oct	0	0	0	0	0	4
WSS033	Pipistrellus pipistrellus	Oct	0	0	0	0	0	3
WSS033	Pipistrellus pygmaeus	May	0	0	0	0	5	0
WSS033	Pipistrellus pygmaeus	Oct	0	0	3	2	4	0
WSS033	Plecotus auritus	Oct	0	0	0	0	0	2
WSS034	Nyctalus leisleri	Jul	0	0	0	0	0	2
WSS034	Pipistrellus pipistrellus	Jul	0	0	0	0	0	1
WSS034	Pipistrellus pygmaeus	Jun	0	0	0	0	0	2
WSS034	Pipistrellus pygmaeus	Jul	0	0	0	0	0	3
WSS034	Plecotus auritus	Jun	0	0	0	0	0	1
WSS035	Myotis	Jul	0	0	0	0	2	1
WSS035	Nyctalus leisleri	Jul	0	0	0	0	0	2
WSS035	Nyctalus leisleri	Oct	0	0	0	0	0	1
WSS035	Pipistrellus pipistrellus	Jul	0	0	0	0	0	2
WSS035	Pipistrellus pipistrellus	Sep	0	0	0	0	0	1
WSS035	Pipistrellus pipistrellus	Oct	0	0	0	0	0	1
WSS035	Pipistrellus pygmaeus	Jul	0	0	0	2	0	3
WSS035	Pipistrellus pygmaeus	Sep	0	0	0	0	6	2

Detector ID	Species/Species Group	month	Nights of Exceptional Activity	Nights of High Activity	Nights of Moderate/High Activity	Nights of Moderate Activity	Nights of Low/Moderate Activity	Nights of Low Activity
WSS035	Pipistrellus pygmaeus	Oct	0	0	0	0	1	0
WSS036	Myotis	Jun	0	0	0	0	0	2
WSS036	Pipistrellus pipistrellus	Jun	0	0	0	0	0	1
WSS036	Pipistrellus pygmaeus	Jun	0	0	0	0	0	2
WSS037	Myotis	Jul	0	0	0	0	0	2
WSS037	Pipistrellus pipistrellus	Jul	0	0	0	0	0	1
WSS037	Pipistrellus pygmaeus	Jul	0	0	0	0	0	3
WSS037	Plecotus auritus	Jul	0	0	0	0	0	1
WSS038	Myotis	Jul	0	0	0	0	0	1
WSS038	Nyctalus leisleri	Jul	0	0	0	0	0	1
WSS038	Pipistrellus pipistrellus	Jul	0	0	0	0	0	1
WSS038	Pipistrellus pygmaeus	Jul	0	0	0	0	0	2
WSS038	Plecotus auritus	Jul	0	0	0	0	2	0
WSS053	Myotis	Oct	0	0	0	0	0	2
WSS053	Pipistrellus pipistrellus	Oct	0	0	0	0	0	2
WSS053	Pipistrellus pygmaeus	Oct	0	0	0	0	0	2
WSS053	Plecotus auritus	Oct	0	0	0	0	0	1
WSS056	Myotis	May	0	0	0	0	0	2
WSS056	Myotis	Jun	0	0	0	0	0	2
WSS056	Myotis	Oct	0	0	0	0	0	4
WSS056	Nyctalus leisleri	Jun	0	0	0	0	0	2
WSS056	Nyctalus leisleri	Oct	0	0	0	0	0	3
WSS056	Pipistrellus pipistrellus	Jun	0	0	0	0	0	3

Detector ID	Species/Species Group	month	Nights of Exceptional Activity	Nights of High Activity	Nights of Moderate/High Activity	Nights of Moderate Activity	Nights of Low/Moderate Activity	Nights of Low Activity
WSS056	Pipistrellus pipistrellus	Oct	0	0	0	0	0	3
WSS056	Pipistrellus pygmaeus	May	0	0	0	0	0	2
WSS056	Pipistrellus pygmaeus	Jun	0	0	0	0	3	2
WSS056	Pipistrellus pygmaeus	Oct	0	0	0	0	4	0
WSS056	Plecotus auritus	Jun	0	0	0	0	0	1
WSS058	Myotis	Jun	0	0	0	0	0	3
WSS058	Nyctalus leisleri	Jun	0	0	0	0	0	1
WSS058	Pipistrellus pipistrellus	Jun	0	0	0	0	0	1
WSS058	Pipistrellus pygmaeus	Jun	0	0	0	0	0	3
WSS059	Myotis	Jun	0	0	0	0	2	0
WSS059	Myotis	Oct	0	0	0	0	0	3
WSS059	Pipistrellus pipistrellus	Jun	0	0	0	0	0	2
WSS059	Pipistrellus pipistrellus	Oct	0	0	0	0	0	3
WSS059	Pipistrellus pygmaeus	Jun	0	0	0	0	0	3
WSS059	Pipistrellus pygmaeus	Oct	0	0	0	0	0	3
WSS059	Plecotus auritus	Jun	0	0	0	0	0	1
WSS059	Plecotus auritus	Oct	0	0	0	0	0	2
WSS060	Nyctalus leisleri	Jul	0	0	0	0	0	2
WSS060	Pipistrellus pygmaeus	Jul	0	0	0	0	2	0
WSS060	Plecotus auritus	Jul	0	0	0	0	0	2
WSS061	Myotis	Oct	0	0	2	1	0	0
WSS061	Pipistrellus pipistrellus	Oct	0	0	0	0	0	1

Detector ID	Species/Species Group	month	Nights of Exceptional Activity	Nights of High Activity	Nights of Moderate/High Activity	Nights of Moderate Activity	Nights of Low/Moderate Activity	Nights of Low Activity
WSS061	Pipistrellus pygmaeus	Oct	0	0	0	0	2	1
WSS061	Plecotus auritus	Oct	0	0	0	0	0	2
WSS062	Myotis	Jul	0	0	0	0	0	2
WSS062	Nyctalus leisleri	Jul	0	0	0	0	0	2
WSS062	Pipistrellus pipistrellus	Jul	0	0	0	0	0	1
WSS062	Pipistrellus pygmaeus	Jul	0	0	0	0	0	7
WSS063	Myotis	Oct	0	0	0	0	0	3
WSS063	Nyctalus leisleri	Oct	0	0	0	0	0	2
WSS063	Pipistrellus pipistrellus	Oct	0	0	0	0	0	3
WSS063	Pipistrellus pygmaeus	Oct	0	0	2	1	2	0
WSS063	Plecotus auritus	Oct	0	0	0	0	2	0
WSS064	Pipistrellus pygmaeus	Jun	0	0	0	0	0	2
WSS064	Plecotus auritus	Jun	0	0	0	0	0	1
WSS071	Myotis	Jun	0	0	0	0	0	2
WSS071	Pipistrellus pygmaeus	Jun	0	0	0	0	0	2
WSS073	Myotis	Jun	0	0	0	0	3	3
WSS073	Nyctalus leisleri	Jun	0	0	0	0	0	2
WSS073	Pipistrellus pipistrellus	Jun	0	0	0	0	0	1
WSS073	Pipistrellus pygmaeus	Jun	0	0	0	0	2	7
WSS074	Myotis	Jun	0	0	0	0	0	4
WSS074	Pipistrellus pygmaeus	Jun	0	0	0	0	0	4
WSS076	Myotis	Oct	0	0	0	1	0	0
WSS076	Pipistrellus pipistrellus	Oct	0	0	0	0	0	1

Detector ID	Species/Species Group	month	Nights of Exceptional Activity	Nights of High Activity	Nights of Moderate/High Activity	Nights of Moderate Activity	Nights of Low/Moderate Activity	Nights of Low Activity
WSS076	Pipistrellus pygmaeus	Oct	0	0	0	0	2	0
WSS076	Plecotus auritus	Oct	0	0	0	0	0	1
WSS077	Pipistrellus pygmaeus	Jun	0	0	0	0	0	5
WSS077	Plecotus auritus	Jun	0	0	0	0	0	2
WSS097	Pipistrellus pipistrellus	Oct	0	0	0	0	0	1
WSS097	Pipistrellus pygmaeus	Oct	0	0	0	0	0	2
WSS097	Plecotus auritus	Oct	0	0	0	0	0	2
WSS100	Myotis	Jun	0	0	0	0	0	2
WSS100	Myotis	Sep	0	0	0	0	0	1
WSS100	Pipistrellus pygmaeus	Jun	0	0	0	0	2	2
WSS100	Pipistrellus pygmaeus	Sep	0	0	0	0	1	0
WSS100	Pipistrellus pygmaeus	Oct	0	0	0	0	1	0
WSS101	Myotis	Oct	0	0	0	0	0	1
WSS101	Nyctalus leisleri	Oct	0	0	0	0	0	2
WSS101	Pipistrellus pygmaeus	Oct	0	0	0	0	0	2
WSS101	Plecotus auritus	Oct	0	0	0	2	0	0
WSS103	Myotis	Jun	0	0	0	0	0	2
WSS103	Nyctalus leisleri	Jun	0	0	0	0	0	2
WSS103	Pipistrellus pygmaeus	Jun	0	0	0	0	0	2
WSS103	Plecotus auritus	Jun	0	0	0	0	1	0
WSS104	Myotis	Jul	0	0	0	0	0	2
WSS104	Nyctalus leisleri	Jul	0	0	0	0	0	2
WSS104	Pipistrellus pipistrellus	Jul	0	0	0	0	0	2

Detector ID	Species/Species Group	month	Nights of Exceptional Activity	Nights of High Activity	Nights of Moderate/High Activity	Nights of Moderate Activity	Nights of Low/Moderate Activity	Nights of Low Activity
WSS104	Pipistrellus pipistrellus	Oct	0	0	0	0	0	1
WSS104	Pipistrellus pygmaeus	Jul	0	0	0	0	2	0
WSS104	Pipistrellus pygmaeus	Oct	0	0	0	0	0	2
WSS104	Plecotus auritus	Jul	0	0	0	0	0	1
WSS105	Myotis	Jun	0	0	0	0	0	1
WSS105	Myotis	Jul	0	0	0	0	2	0
WSS105	Myotis	Sep	0	0	0	0	1	0
WSS105	Myotis	Oct	0	0	0	0	1	0
WSS105	Nyctalus leisleri	Jun	0	0	0	0	0	2
WSS105	Nyctalus leisleri	Jul	0	0	0	0	0	1
WSS105	Pipistrellus pipistrellus	Jul	0	0	0	0	0	2
WSS105	Pipistrellus pygmaeus	Jun	0	0	0	0	2	2
WSS105	Pipistrellus pygmaeus	Jul	0	0	0	0	0	3
WSS105	Pipistrellus pygmaeus	Sep	0	0	0	0	0	1
WSS105	Pipistrellus pygmaeus	Oct	0	0	0	0	0	1
WSS105	Plecotus auritus	Jun	0	0	0	0	0	1
WSS105	Plecotus auritus	Oct	0	0	0	0	0	1
WSS106	Myotis	Oct	0	0	0	2	0	0
WSS106	Nyctalus leisleri	Oct	0	0	0	0	0	1
WSS106	Pipistrellus pipistrellus	Oct	0	0	0	0	0	2
WSS106	Pipistrellus pygmaeus	Oct	0	0	0	0	3	0
WSS106	Plecotus auritus	Oct	0	0	0	0	0	2

Table 6. Summary table showing key metrics for each species recorded per month. Please note that we cannot split the reference range by month, hence this column is not shown in this table.

Detector ID	Species/Species Group	month	Median Percentile	95% CIs	Max. Percentile	Nights Recorded
WSS026	Myotis	May	0	0 - 0	0	2
WSS026	Pipistrellus pygmaeus	May	0	0 - 0	0	2
WSS026	Plecotus auritus	May	3	0	3	1
WSS027	Myotis	Oct	0	0	0	1
WSS027	Nyctalus leisleri	Oct	0	0	0	1
WSS027	Pipistrellus pygmaeus	Oct	0	0 - 0	0	2
WSS027	Plecotus auritus	Oct	23	23 - 23	23	2
WSS029	Myotis	Jun	3	1.5 - 1.5	3	2
WSS029	Myotis	Sep	0	1.5 - 1.5	0	1
WSS029	Myotis	Oct	0	1.5 - 1.5	0	1
WSS029	Nyctalus leisleri	Oct	0	0	0	1
WSS029	Pipistrellus pipistrellus	Jun	0	0 - 0	0	2
WSS029	Pipistrellus pipistrellus	Oct	0	0 - 0	0	1
WSS029	Pipistrellus pygmaeus	Jun	1	1 - 2	1	2
WSS029	Pipistrellus pygmaeus	Sep	2	1 - 2	2	1
WSS029	Pipistrellus pygmaeus	Oct	2	1 - 2	2	1
WSS029	Plecotus auritus	Jun	3	20 - 20	3	1
WSS029	Plecotus auritus	Sep	20	20 - 20	20	1
WSS029	Plecotus auritus	Oct	20	20 - 20	20	1
WSS031	Myotis	Oct	39	39 - 39	39	2
WSS031	Pipistrellus pipistrellus	Oct	0	0	0	1
WSS031	Pipistrellus pygmaeus	Oct	32	32 - 32	32	3
WSS031	Plecotus auritus	Oct	6	6 - 6	6	2
WSS033	Myotis	May	6	8 - 10	6	2
WSS033	Myotis	Oct	10	8 - 10	10	4
WSS033	Pipistrellus pipistrellus	Oct	0	0 - 0	0	3
WSS033	Pipistrellus pygmaeus	May	27	28 - 53.5	29	5
WSS033	Pipistrellus pygmaeus	Oct	40	28 - 53.5	78	9
WSS033	Plecotus auritus	Oct	5	4.5 - 4.5	6	2
WSS034	Nyctalus leisleri	Jul	1	1 - 1	1	2
WSS034	Pipistrellus pipistrellus	Jul	0	0	0	1
WSS034	Pipistrellus pygmaeus	Jun	10	10 - 10	10	2
WSS034	Pipistrellus pygmaeus	Jul	10	10 - 10	10	3

Detector ID	Species/Species Group	month	Median Percentile	95% CIs	Max. Percentile	Nights Recorded
WSS034	Plecotus auritus	Jun	0	0	0	1
WSS035	Myotis	Jul	21	21 - 21	21	3
WSS035	Nyctalus leisleri	Jul	0	0 - 0	0	2
WSS035	Nyctalus leisleri	Oct	0	0 - 0	0	1
WSS035	Pipistrellus pipistrellus	Jul	0	0 - 0	0	2
WSS035	Pipistrellus pipistrellus	Sep	0	0 - 0	0	1
WSS035	Pipistrellus pipistrellus	Oct	0	0 - 0	0	1
WSS035	Pipistrellus pygmaeus	Jul	11	17.5 - 34	52	5
WSS035	Pipistrellus pygmaeus	Sep	32	17.5 - 34	34	8
WSS035	Pipistrellus pygmaeus	Oct	31	17.5 - 34	31	1
WSS036	Myotis	Jun	6	6 - 6	6	2
WSS036	Pipistrellus pipistrellus	Jun	0	0	0	1
WSS036	Pipistrellus pygmaeus	Jun	0	0 - 0	0	2
WSS037	Myotis	Jul	0	0 - 0	0	2
WSS037	Pipistrellus pipistrellus	Jul	0	0	0	1
WSS037	Pipistrellus pygmaeus	Jul	1	1 - 1	1	3
WSS037	Plecotus auritus	Jul	3	0	3	1
WSS038	Myotis	Jul	0	0	0	1
WSS038	Nyctalus leisleri	Jul	0	0	0	1
WSS038	Pipistrellus pipistrellus	Jul	0	0	0	1
WSS038	Pipistrellus pygmaeus	Jul	0	0 - 0	0	2
WSS038	Plecotus auritus	Jul	20	20 - 20	20	2
WSS053	Myotis	Oct	9	9 - 9	9	2
WSS053	Pipistrellus pipistrellus	Oct	0	0 - 0	0	2
WSS053	Pipistrellus pygmaeus	Oct	17	17 - 17	17	2
WSS053	Plecotus auritus	Oct	0	0	0	1
WSS056	Myotis	May	0	0 - 0	0	2
WSS056	Myotis	Jun	0	0 - 0	0	2
WSS056	Myotis	Oct	2	0 - 0	3	4
WSS056	Nyctalus leisleri	Jun	0	0 - 0	0	2
WSS056	Nyctalus leisleri	Oct	0	0 - 0	0	3
WSS056	Pipistrellus pipistrellus	Jun	0	0 - 0	0	3
WSS056	Pipistrellus pipistrellus	Oct	0	0 - 0	0	3
WSS056	Pipistrellus pygmaeus	May	4	16 - 36	8	2
WSS056	Pipistrellus pygmaeus	Jun	24	16 - 36	29	5
WSS056	Pipistrellus pygmaeus	Oct	36	16 - 36	36	4

Detector ID	Species/Species Group	month	Median Percentile	95% CIs	Max. Percentile	Nights Recorded
WSS056	Plecotus auritus	Jun	0	0	0	1
WSS058	Myotis	Jun	0	0 - 0	0	3
WSS058	Nyctalus leisleri	Jun	0	0	0	1
WSS058	Pipistrellus pipistrellus	Jun	0	0	0	1
WSS058	Pipistrellus pygmaeus	Jun	8	8 - 8	8	3
WSS059	Myotis	Jun	37	3.5 - 37	37	2
WSS059	Myotis	Oct	4	3.5 - 37	4	3
WSS059	Pipistrellus pipistrellus	Jun	0	0 - 0	0	2
WSS059	Pipistrellus pipistrellus	Oct	0	0 - 0	0	3
WSS059	Pipistrellus pygmaeus	Jun	3	3 - 3	3	3
WSS059	Pipistrellus pygmaeus	Oct	0	3 - 3	0	3
WSS059	Plecotus auritus	Jun	6	4.5 - 4.5	6	1
WSS059	Plecotus auritus	Oct	2	4.5 - 4.5	3	2
WSS060	Nyctalus leisleri	Jul	0	0 - 0	0	2
WSS060	Pipistrellus pygmaeus	Jul	33	33 - 33	33	2
WSS060	Plecotus auritus	Jul	6	6 - 6	6	2
WSS061	Myotis	Oct	72	72 - 72	72	3
WSS061	Pipistrellus pipistrellus	Oct	0	0	0	1
WSS061	Pipistrellus pygmaeus	Oct	25	25 - 25	25	3
WSS061	Plecotus auritus	Oct	11	11 - 11	11	2
WSS062	Myotis	Jul	6	6 - 6	6	2
WSS062	Nyctalus leisleri	Jul	0	0 - 0	0	2
WSS062	Pipistrellus pipistrellus	Jul	0	0	0	1
WSS062	Pipistrellus pygmaeus	Jul	11	4 - 14	17	7
WSS063	Myotis	Oct	13	13 - 13	13	3
WSS063	Nyctalus leisleri	Oct	0	0 - 0	0	2
WSS063	Pipistrellus pipistrellus	Oct	0	0 - 0	0	3
WSS063	Pipistrellus pygmaeus	Oct	40	37 - 68	68	5
WSS063	Plecotus auritus	Oct	35	35 - 35	35	2
WSS064	Pipistrellus pygmaeus	Jun	0	0 - 0	0	2
WSS064	Plecotus auritus	Jun	0	0	0	1
WSS071	Myotis	Jun	9	9 - 9	9	2
WSS071	Pipistrellus pygmaeus	Jun	1	1 - 1	1	2
WSS073	Myotis	Jun	17	19.5 - 27	27	6
WSS073	Nyctalus leisleri	Jun	0	0 - 0	0	2
WSS073	Pipistrellus pipistrellus	Jun	0	0	0	1

Detector ID	Species/Species Group	month	Median Percentile	95% CIs	Max. Percentile	Nights Recorded
WSS073	Pipistrellus pygmaeus	Jun	3	3 - 24	24	9
WSS074	Myotis	Jun	7	7 - 7	7	4
WSS074	Pipistrellus pygmaeus	Jun	0	0 - 0	0	4
WSS076	Myotis	Oct	42	0	42	1
WSS076	Pipistrellus pipistrellus	Oct	0	0	0	1
WSS076	Pipistrellus pygmaeus	Oct	25	25 - 25	25	2
WSS076	Plecotus auritus	Oct	11	0	11	1
WSS077	Pipistrellus pygmaeus	Jun	0	0 - 0	0	5
WSS077	Plecotus auritus	Jun	0	0 - 0	0	2
WSS097	Pipistrellus pipistrellus	Oct	0	0	0	1
WSS097	Pipistrellus pygmaeus	Oct	0	0 - 0	0	2
WSS097	Plecotus auritus	Oct	11	11 - 11	11	2
WSS100	Myotis	Jun	0	0 - 0	0	2
WSS100	Myotis	Sep	0	0 - 0	0	1
WSS100	Pipistrellus pygmaeus	Jun	15	14.5 - 31	24	4
WSS100	Pipistrellus pygmaeus	Sep	31	14.5 - 31	31	1
WSS100	Pipistrellus pygmaeus	Oct	31	14.5 - 31	31	1
WSS101	Myotis	Oct	0	0	0	1
WSS101	Nyctalus leisleri	Oct	0	0 - 0	0	2
WSS101	Pipistrellus pygmaeus	Oct	0	0 - 0	0	2
WSS101	Plecotus auritus	Oct	44	44 - 44	44	2
WSS103	Myotis	Jun	0	0 - 0	0	2
WSS103	Nyctalus leisleri	Jun	0	0 - 0	0	2
WSS103	Pipistrellus pygmaeus	Jun	2	2 - 2	2	2
WSS103	Plecotus auritus	Jun	23	0	23	1
WSS104	Myotis	Jul	10	10 - 10	10	2
WSS104	Nyctalus leisleri	Jul	0	0 - 0	0	2
WSS104	Pipistrellus pipistrellus	Jul	0	0 - 0	0	2
WSS104	Pipistrellus pipistrellus	Oct	0	0 - 0	0	1
WSS104	Pipistrellus pygmaeus	Jul	24	12 - 12	24	2
WSS104	Pipistrellus pygmaeus	Oct	0	12 - 12	0	2
WSS104	Plecotus auritus	Jul	6	0	6	1
WSS105	Myotis	Jun	9	19 - 39	9	1
WSS105	Myotis	Jul	29	19 - 39	29	2
WSS105	Myotis	Sep	39	19 - 39	39	1
WSS105	Myotis	Oct	39	19 - 39	39	1

Detector ID	Species/Species Group	month	Median Percentile	95% CIs	Max. Percentile	Nights Recorded
WSS105	Nyctalus leisleri	Jun	0	0 - 0	0	2
WSS105	Nyctalus leisleri	Jul	0	0 - 0	0	1
WSS105	Pipistrellus pipistrellus	Jul	0	0 - 0	0	2
WSS105	Pipistrellus pygmaeus	Jun	16	2 - 19.5	29	4
WSS105	Pipistrellus pygmaeus	Jul	10	2 - 19.5	10	3
WSS105	Pipistrellus pygmaeus	Sep	1	2 - 19.5	1	1
WSS105	Pipistrellus pygmaeus	Oct	1	2 - 19.5	1	1
WSS105	Plecotus auritus	Jun	0	0 - 0	0	1
WSS105	Plecotus auritus	Oct	0	0 - 0	0	1
WSS106	Myotis	Oct	54	54 - 54	54	2
WSS106	Nyctalus leisleri	Oct	0	0	0	1
WSS106	Pipistrellus pipistrellus	Oct	0	0 - 0	0	2
WSS106	Pipistrellus pygmaeus	Oct	28	28 - 28	28	3
WSS106	Plecotus auritus	Oct	3	3 - 3	3	2

Per Site

In this 'Per Site' section of the analysis, all values are taken from across all of the detectors to provide site-wide averages/medians.

Table 7. Summary table showing the number of nights recorded bat activity fell into each activity band for each species.

Species/Species Group	Nights of Exceptional Activity	Nights of High Activity	Nights of Moderate/High Activity	Nights of Moderate Activity	Nights of Low/Moderate Activity	Nights of Low Activity
Myotis	0	0	2	4	13	58
Nyctalus leisleri	0	0	0	0	0	32
Pipistrellus pipistrellus	0	0	0	0	0	44
Pipistrellus pygmaeus	0	0	5	5	46	86
Plecotus auritus	0	0	0	2	9	28

Table 8. Summary table showing key metrics for each species recorded.

Species/Species Group	Median Percentile	95% CIs	Max. Percentile	Nights Recorded
Myotis	6	9 - 9	72	77
Nyctalus leisleri	0	1 - 1	1	32
Pipistrellus pipistrellus	0	0 - 0	0	44
Pipistrellus pygmaeus	10	8 - 8	78	142
Plecotus auritus	6	6 - 6	44	39

Figure 4. The activity level (percentile) of bats recorded across each night of the bat survey for the **entire site**.

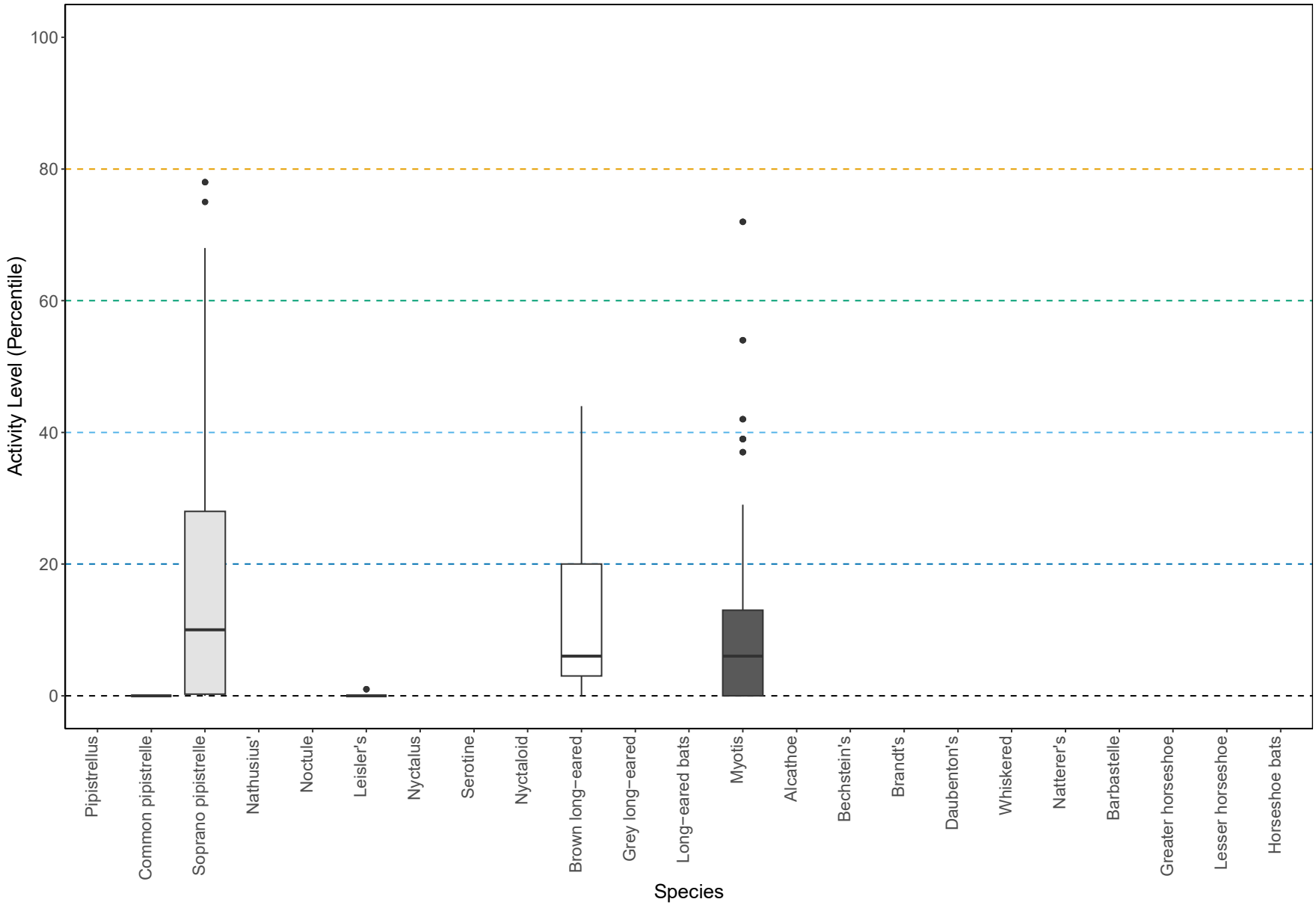
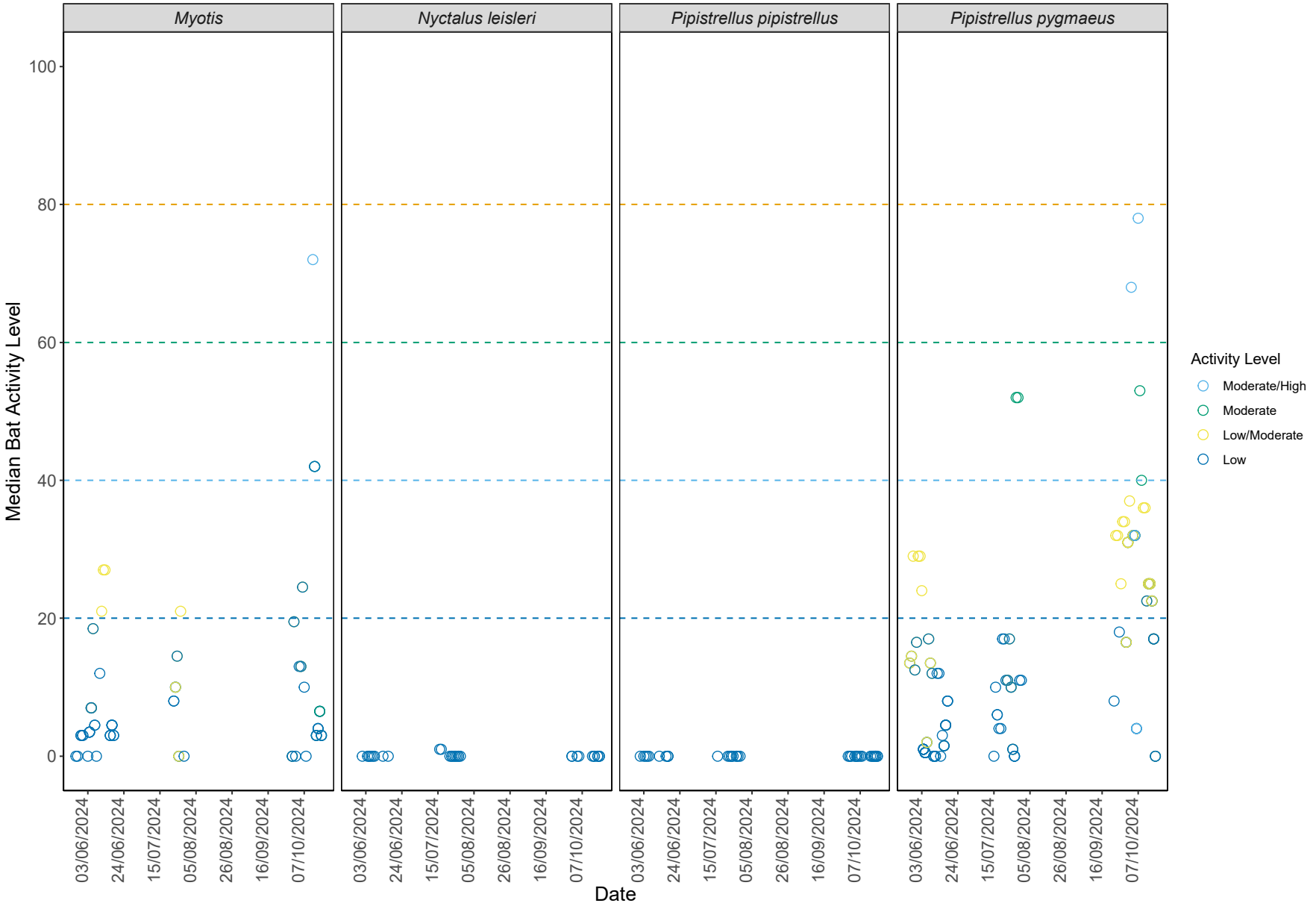
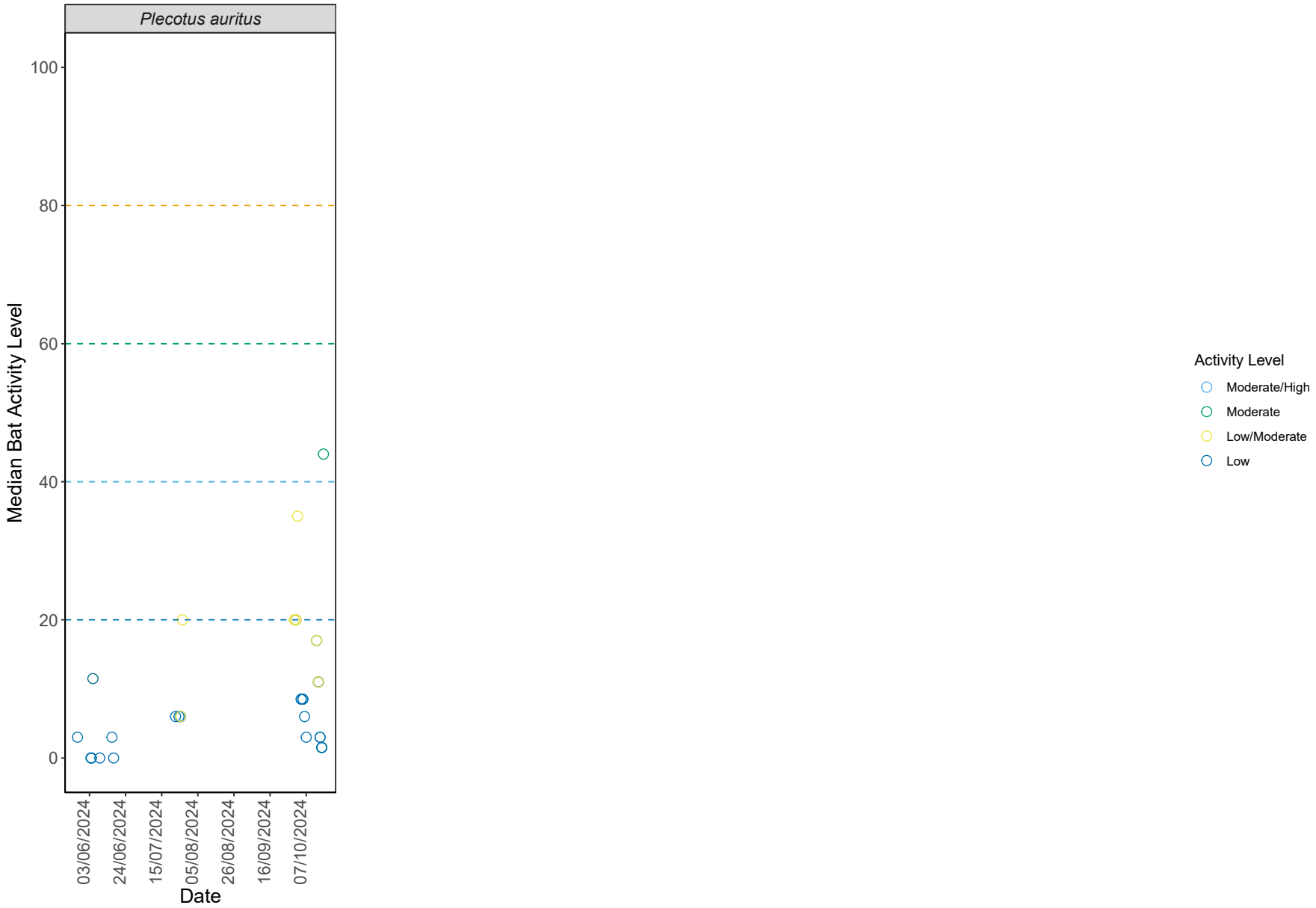

Activity Level (Percentile)
100
80
60
40
20
0
Pipistrellus
Common pipistrelle
Soprano pipistrelle
Nathusius'
Noctule
Leisler's
Nyctalus
Serotine
Nyctaloid
Brown long−eared
Grey long−eared
Long−eared bats
Myotis
Alcathoe
Bechstein's
Brandt's
Daubenton's
Whiskered
Natterer's
Barbastelle
Greater horseshoe
Lesser horseshoe
Horseshoe bats
Species

Figure 5. The median activity levels of bats recorded across all detectors each night.


Myotis
Nyctalus leisleri
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Median Bat Activity Level
100
80
60
40
20
0
03/06/2024
24/06/2024
15/07/2024
05/08/2024
26/08/2024
16/09/2024
07/10/2024
Date
Activity Level
Moderate/High
Moderate
Low/Moderate
Low


Plecotus auritus
Median Bat Activity Level
100
80
60
40
20
0
03/06/2024
24/06/2024
15/07/2024
05/08/2024
26/08/2024
16/09/2024
07/10/2024
Date
Activity Level
Moderate/High
Moderate
Low/Moderate
Low

Per Site, Per Month

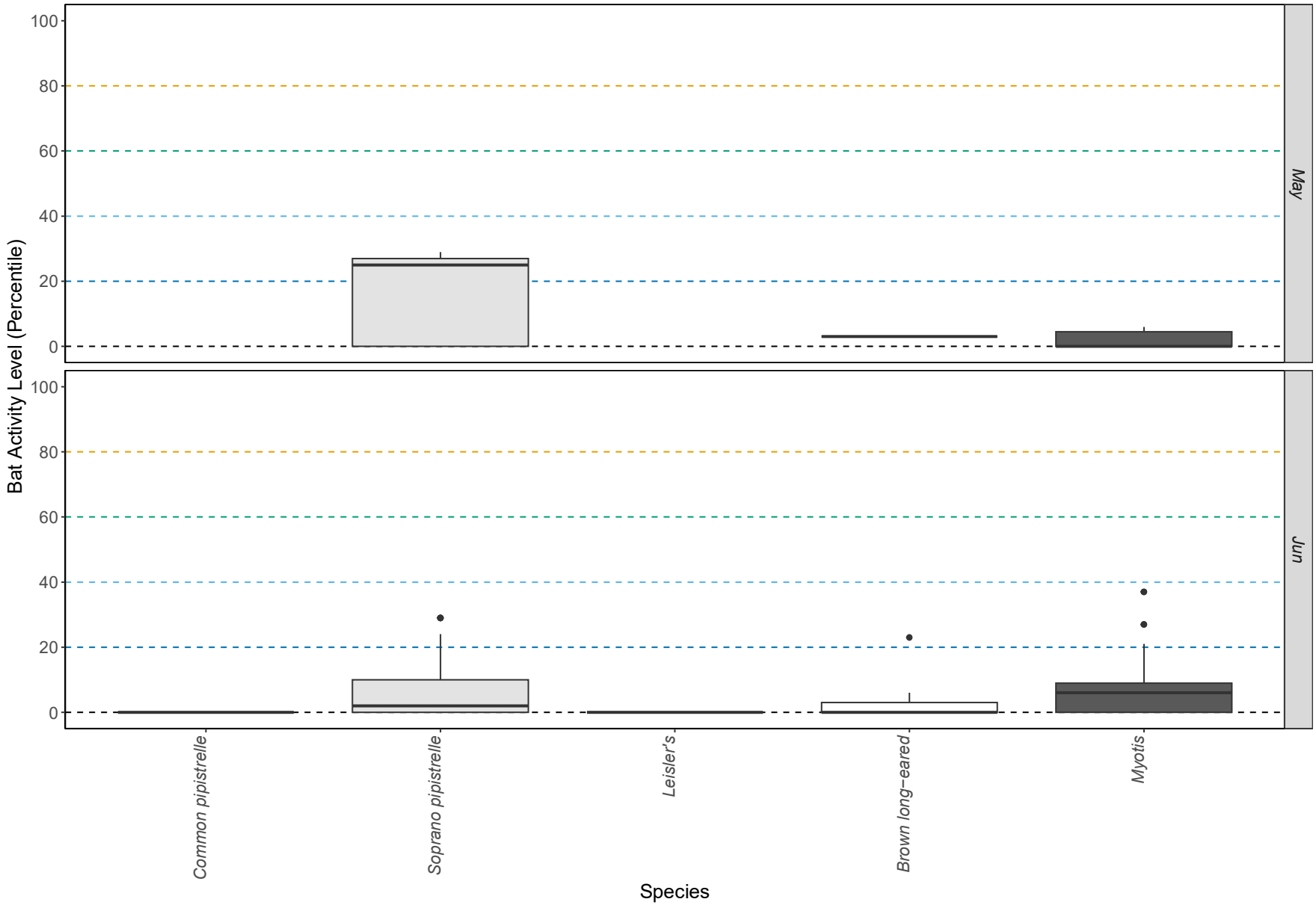
Table 9. Summary table showing the number of nights recorded bat activity fell into each activity band for each species during each month.

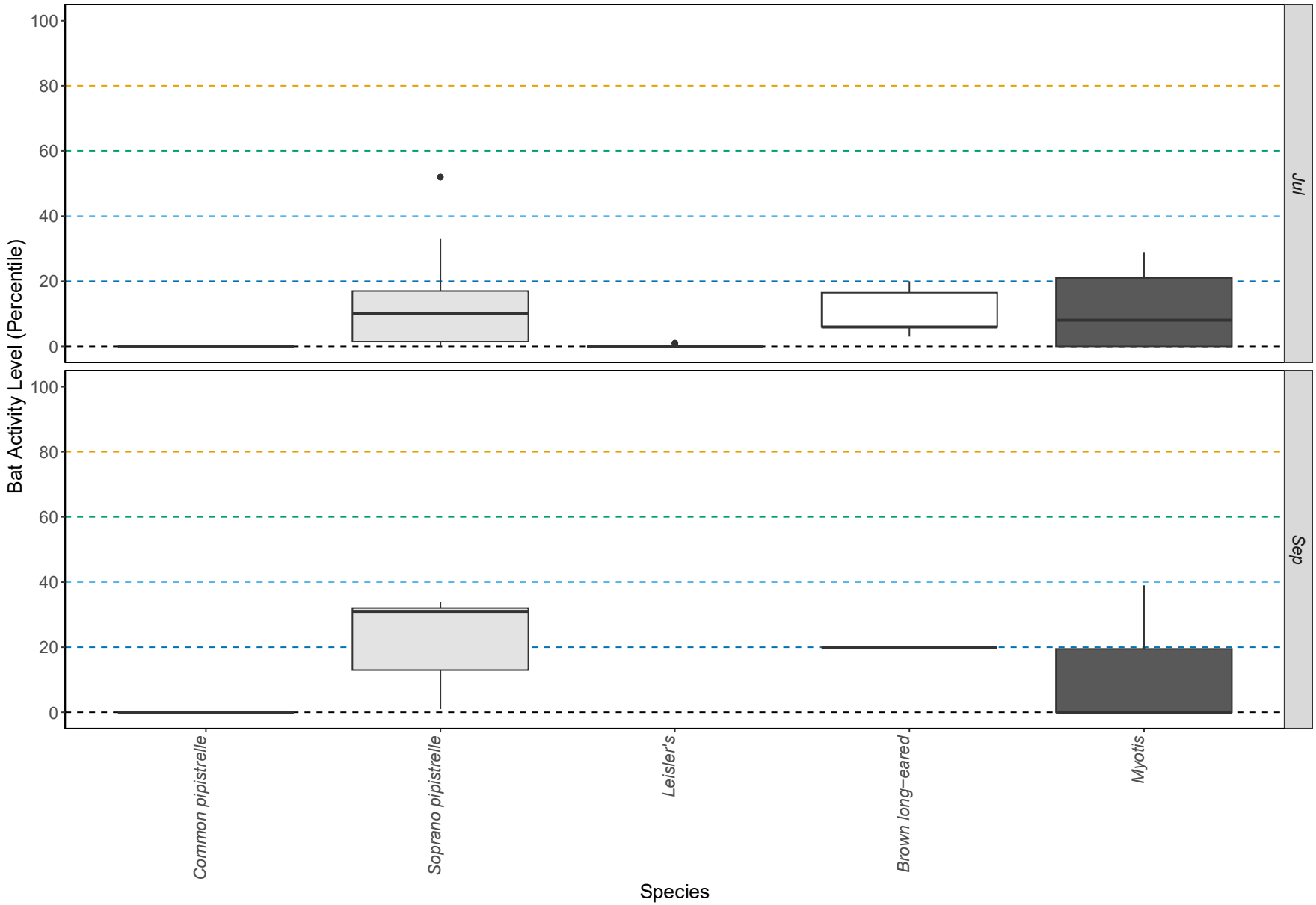
Species/Species Group	month	Nights of Exceptional Activity	Nights of High Activity	Nights of Moderate/High Activity	Nights of Moderate Activity	Nights of Low/Moderate Activity	Nights of Low Activity
Myotis	May	0	0	0	0	0	6
Myotis	Jun	0	0	0	0	5	23
Myotis	Jul	0	0	0	0	4	8
Myotis	Sep	0	0	0	0	1	2
Myotis	Oct	0	0	2	4	3	19
Nyctalus leisleri	Jun	0	0	0	0	0	9
Nyctalus leisleri	Jul	0	0	0	0	0	12
Nyctalus leisleri	Oct	0	0	0	0	0	11
Pipistrellus pipistrellus	Jun	0	0	0	0	0	10
Pipistrellus pipistrellus	Jul	0	0	0	0	0	10
Pipistrellus pipistrellus	Sep	0	0	0	0	0	1
Pipistrellus pipistrellus	Oct	0	0	0	0	0	23
Pipistrellus pygmaeus	May	0	0	0	0	5	4
Pipistrellus pygmaeus	Jun	0	0	0	0	9	40
Pipistrellus pygmaeus	Jul	0	0	0	2	4	21
Pipistrellus pygmaeus	Sep	0	0	0	0	7	4
Pipistrellus pygmaeus	Oct	0	0	5	3	21	17
Plecotus auritus	May	0	0	0	0	0	1
Plecotus auritus	Jun	0	0	0	0	1	8
Plecotus auritus	Jul	0	0	0	0	2	4
Plecotus auritus	Sep	0	0	0	0	1	0
Plecotus auritus	Oct	0	0	0	2	5	15

Table 10. Summary table showing key metrics for each species recorded per month.

Species/Species Group	month	Median Percentile	95% CIs	Max. Percentile	Nights Recorded
Myotis	May	0	8 - 10	6	6
Myotis	Jun	6	9 - 9	37	28
Myotis	Jul	8	6 - 6	29	12
Myotis	Sep	0	19 - 39	39	3
Myotis	Oct	10	9 - 9	72	28
Nyctalus leisleri	Jun	0	0 - 0	0	9
Nyctalus leisleri	Jul	0	1 - 1	1	12
Nyctalus leisleri	Oct	0	0 - 0	0	11
Pipistrellus pipistrellus	Jun	0	0 - 0	0	10
Pipistrellus pipistrellus	Jul	0	0 - 0	0	10
Pipistrellus pipistrellus	Sep	0	0 - 0	0	1
Pipistrellus pipistrellus	Oct	0	0 - 0	0	23
Pipistrellus pygmaeus	May	25	28 - 53.5	29	9
Pipistrellus pygmaeus	Jun	2	8 - 8	29	49
Pipistrellus pygmaeus	Jul	10	4 - 14	52	27
Pipistrellus pygmaeus	Sep	31	2 - 19.5	34	11
Pipistrellus pygmaeus	Oct	28	37 - 68	78	46
Plecotus auritus	May	3	0	3	1
Plecotus auritus	Jun	0	4.5 - 4.5	23	9
Plecotus auritus	Jul	6	6 - 6	20	6
Plecotus auritus	Sep	20	20 - 20	20	1
Plecotus auritus	Oct	11	6 - 6	44	22

Figure 6. The activity level (percentile) of bats recorded across each night of the bat survey for the entire site, split between months.


Bat Activity Level (Percentile)
100
80
60
40
20
0
May
Jun
Common pipistrelle
Soprano pipistrelle
Leisler's
Brown long−eared
Myotis
Species


Bat Activity Level (Percentile)
100
80
60
40
20
0
Jul
Sep
Common pipistrelle
Soprano pipistrelle
Leisler's
Brown long−eared
Myotis
Species

Part 2: Nightly Analysis

Entire Survey Period

Sunrise and Sunset Times

Table 11. The times of sunset and sunrise the following morning for surveys beginning on the date shown.

Night (y-m-d)	Sunset (h:m)	Sunrise (h:m)	Night Length (hours)
2024-05-27	21:56	05:18	7.4
2024-05-28	21:57	05:17	7.3
2024-05-29	21:59	05:16	7.3
2024-05-30	22:00	05:15	7.2
2024-05-31	22:01	05:14	7.2
2024-06-01	22:03	05:13	7.2
2024-06-02	22:04	05:12	7.1
2024-06-03	22:05	05:12	7.1
2024-06-04	22:06	05:11	7.1
2024-06-05	22:07	05:10	7.0
2024-06-06	22:08	05:10	7.0
2024-06-07	22:09	05:09	7.0
2024-06-08	22:10	05:08	7.0
2024-06-09	22:11	05:08	6.9
2024-06-10	22:12	05:08	6.9
2024-06-11	22:13	05:07	6.9
2024-06-12	22:13	05:07	6.9
2024-06-13	22:14	05:07	6.9
2024-06-14	22:15	05:07	6.9
2024-06-15	22:15	05:07	6.9
2024-06-16	22:16	05:06	6.8
2024-06-17	22:16	05:06	6.8
2024-06-18	22:17	05:07	6.8
2024-07-15	22:05	05:28	7.4
2024-07-16	22:04	05:30	7.4
2024-07-17	22:03	05:31	7.5
2024-07-18	22:02	05:33	7.5
2024-07-19	22:00	05:34	7.6

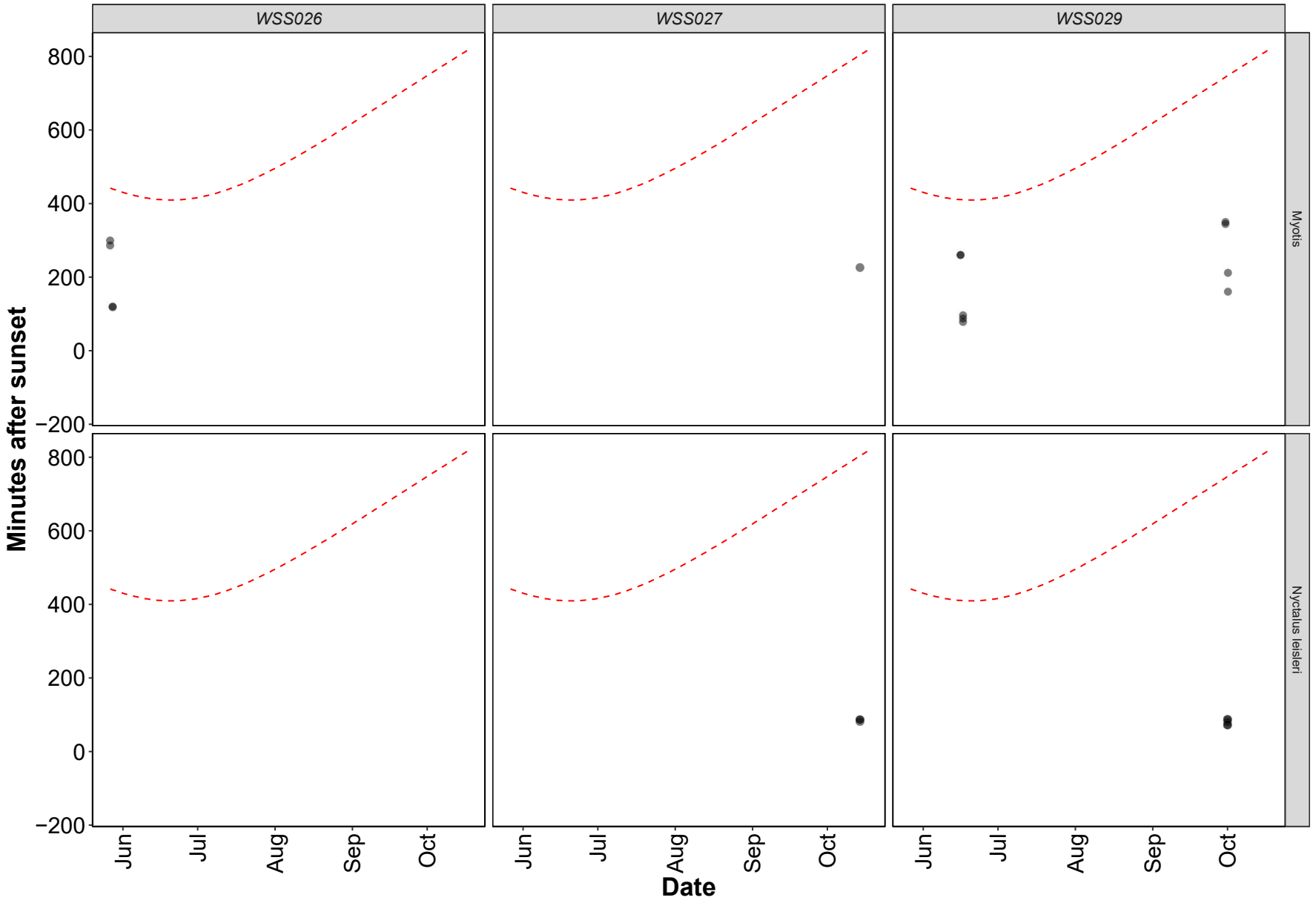
Night (y-m-d)	Sunset (h:m)	Sunrise (h:m)	Night Length (hours)
2024-07-20	21:59	05:36	7.6
2024-07-21	21:58	05:37	7.7
2024-07-22	21:56	05:39	7.7
2024-07-23	21:55	05:40	7.8
2024-07-24	21:53	05:42	7.8
2024-07-25	21:52	05:43	7.9
2024-07-26	21:50	05:45	7.9
2024-07-27	21:48	05:47	8.0
2024-07-28	21:47	05:48	8.0
2024-07-29	21:45	05:50	8.1
2024-07-30	21:43	05:52	8.1
2024-07-31	21:41	05:54	8.2
2024-09-23	19:37	07:30	11.9
2024-09-24	19:35	07:32	12.0
2024-09-25	19:32	07:34	12.0
2024-09-26	19:30	07:35	12.1
2024-09-27	19:27	07:37	12.2
2024-09-28	19:25	07:39	12.2
2024-09-29	19:22	07:41	12.3
2024-09-30	19:20	07:43	12.4
2024-10-01	19:17	07:44	12.5
2024-10-02	19:15	07:46	12.5
2024-10-03	19:12	07:48	12.6
2024-10-04	19:10	07:50	12.7
2024-10-05	19:07	07:52	12.7
2024-10-06	19:05	07:54	12.8
2024-10-07	19:02	07:56	12.9
2024-10-08	19:00	07:57	13.0
2024-10-09	18:57	07:59	13.0
2024-10-10	18:55	08:01	13.1
2024-10-11	18:53	08:03	13.2
2024-10-12	18:50	08:05	13.2
2024-10-13	18:48	08:07	13.3
2024-10-14	18:45	08:09	13.4
2024-10-15	18:43	08:11	13.5
2024-10-16	18:41	08:12	13.5

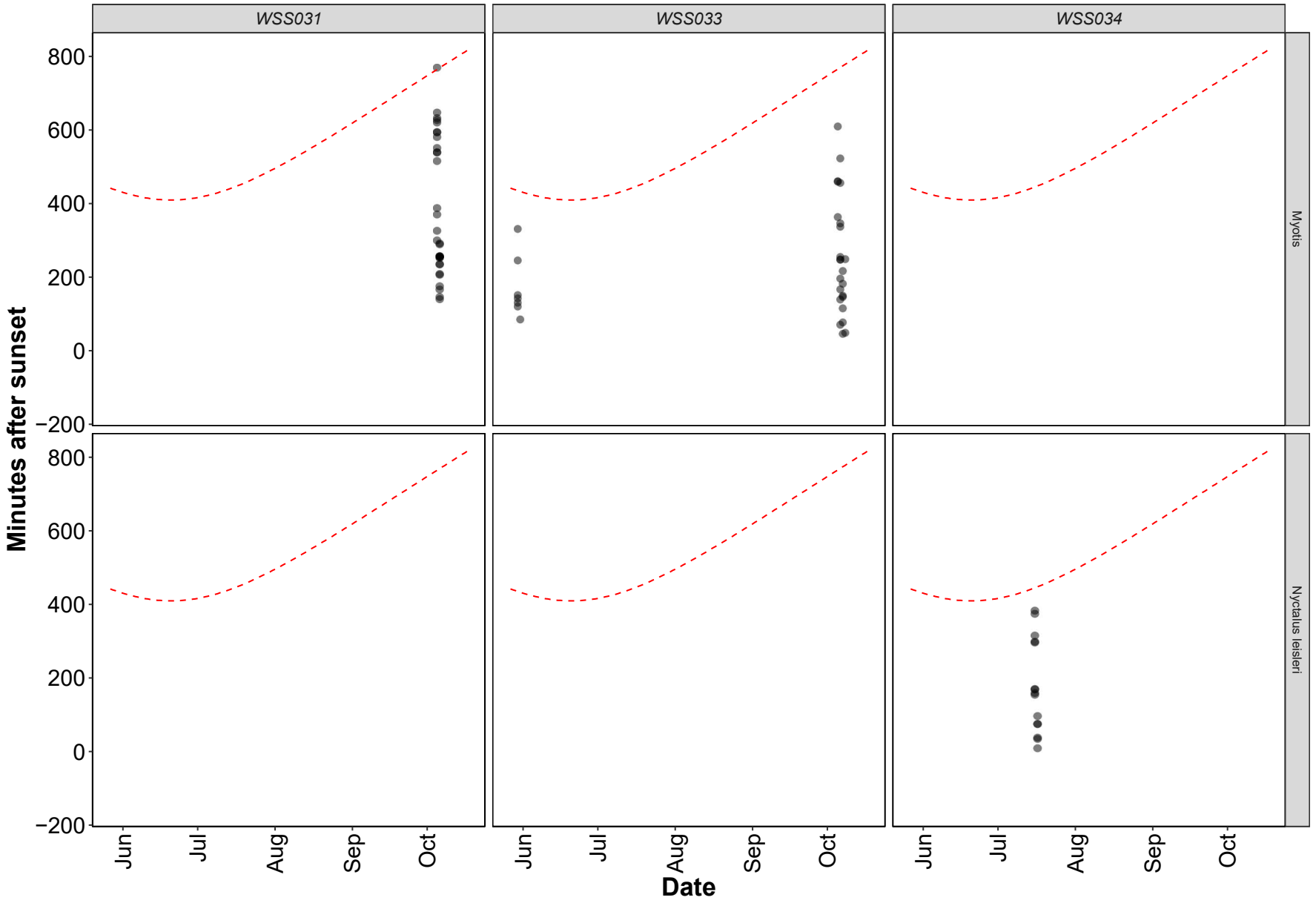
Night (y-m-d)	Sunset (h:m)	Sunrise (h:m)	Night Length (hours)
2024-10-17	18:38	08:14	13.6

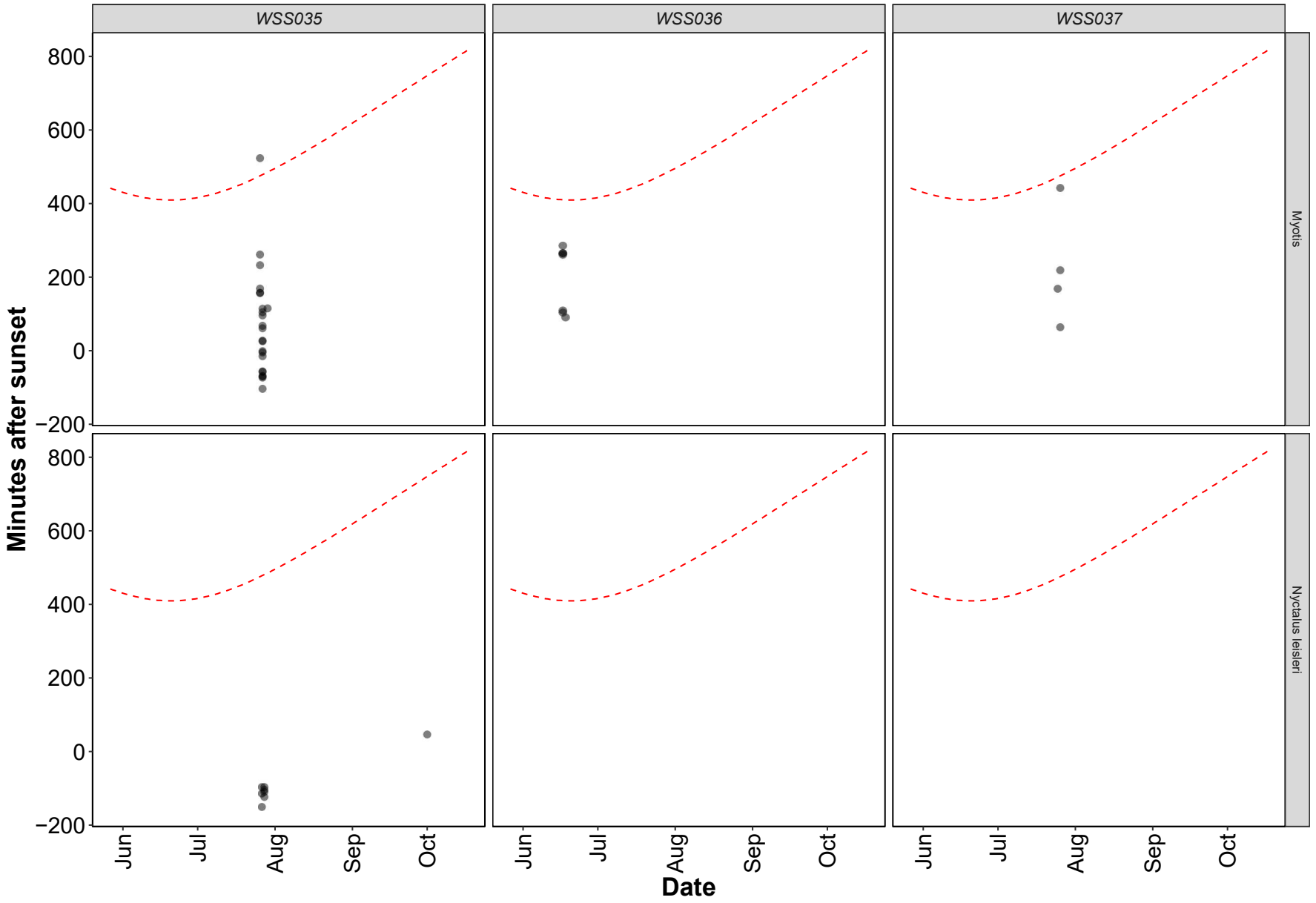
Distribution of Bat Activity Across the Night through Time

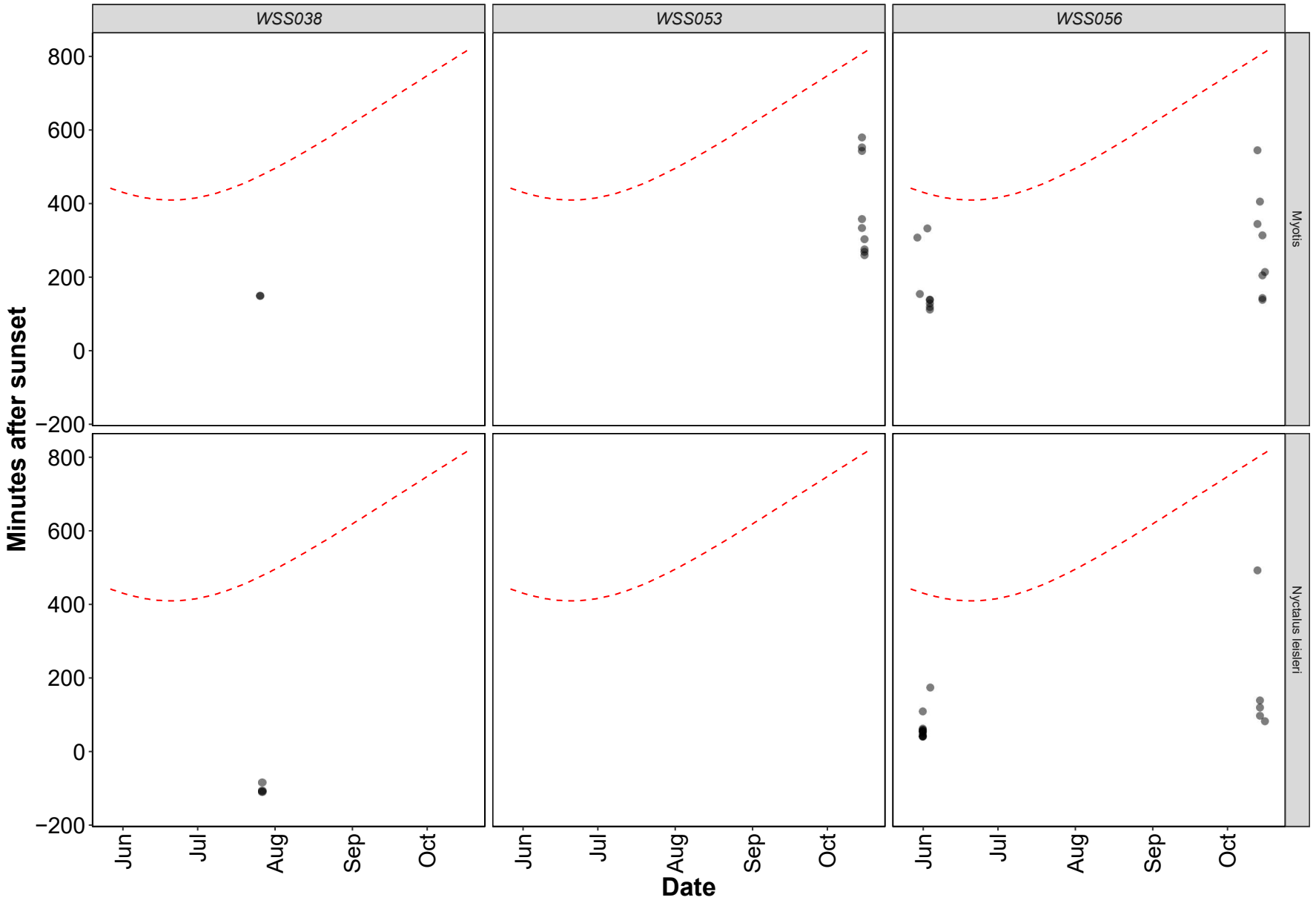
Per Detector

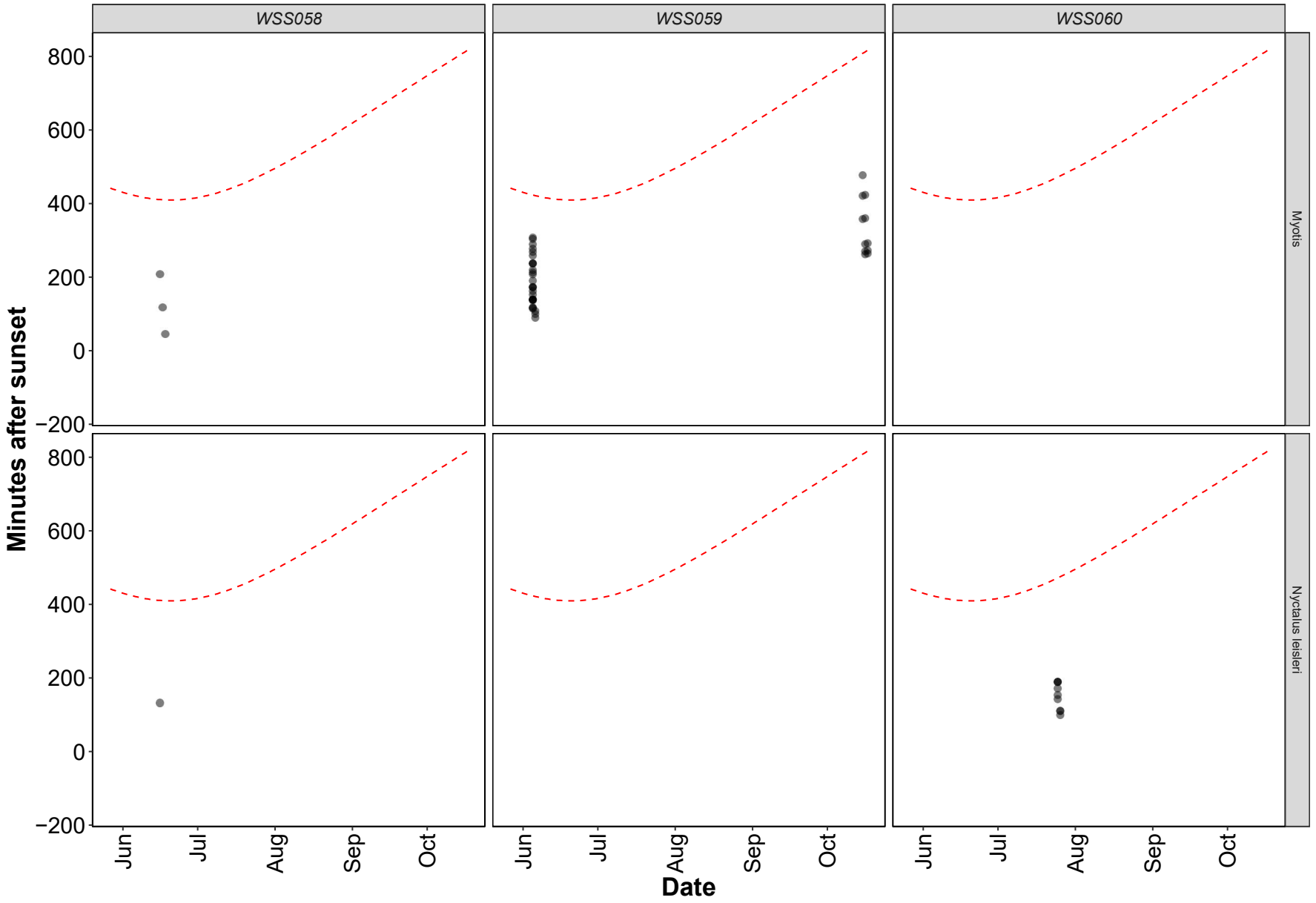
Figure 7. Timing of bat calls plotted as minutes before/after sunset, whereby 0 on the y axis represents sunset. Sunrise throughout the survey period is depicted as the red dashed line. Colours indicate kernel densities, with darkest colours showing peaks of activity. These colours are comparative only within each plot, and do not account for overall activity.

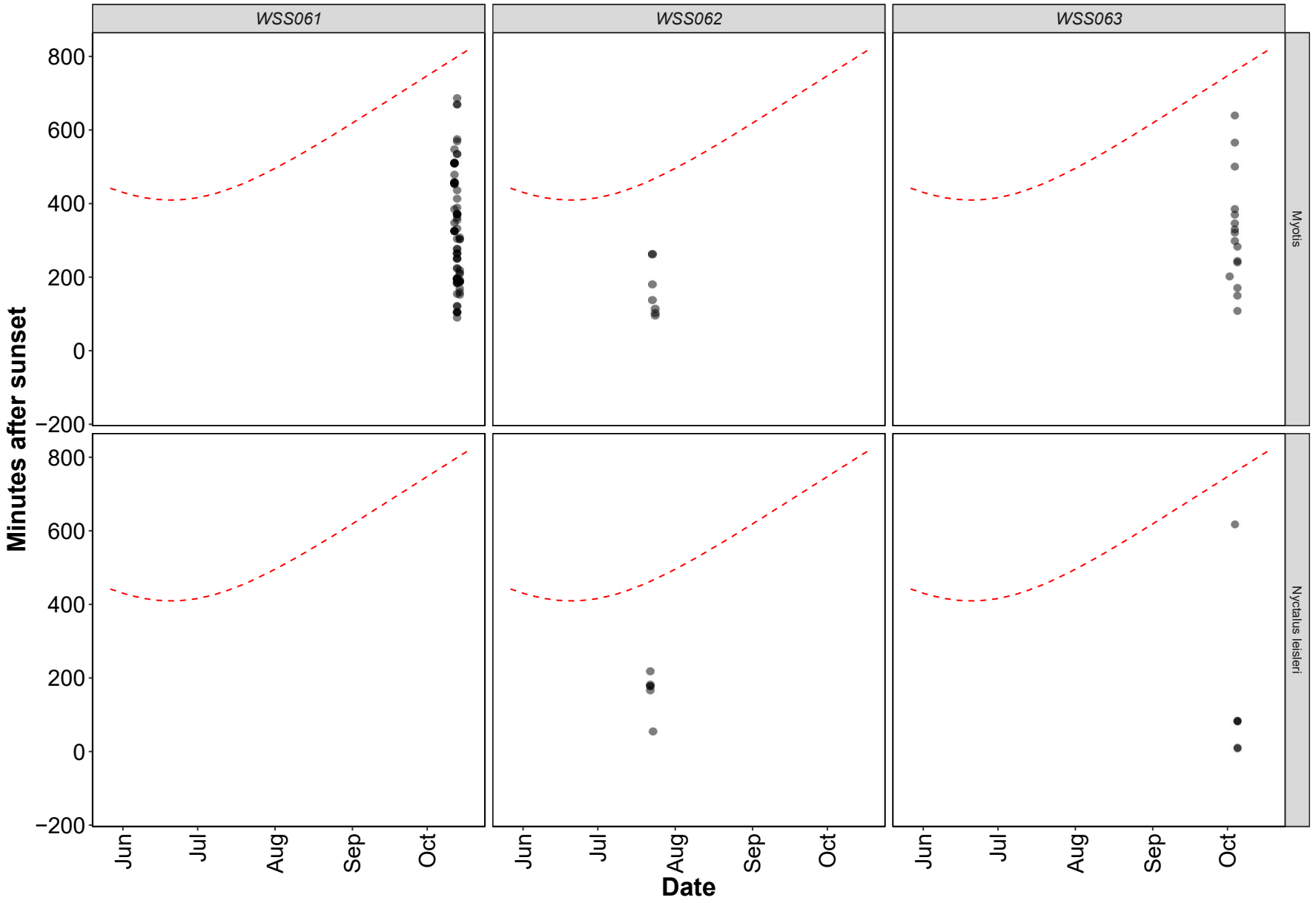

WSS026
WSS027
WSS029
Myotis
Nyctalus leisleri
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date

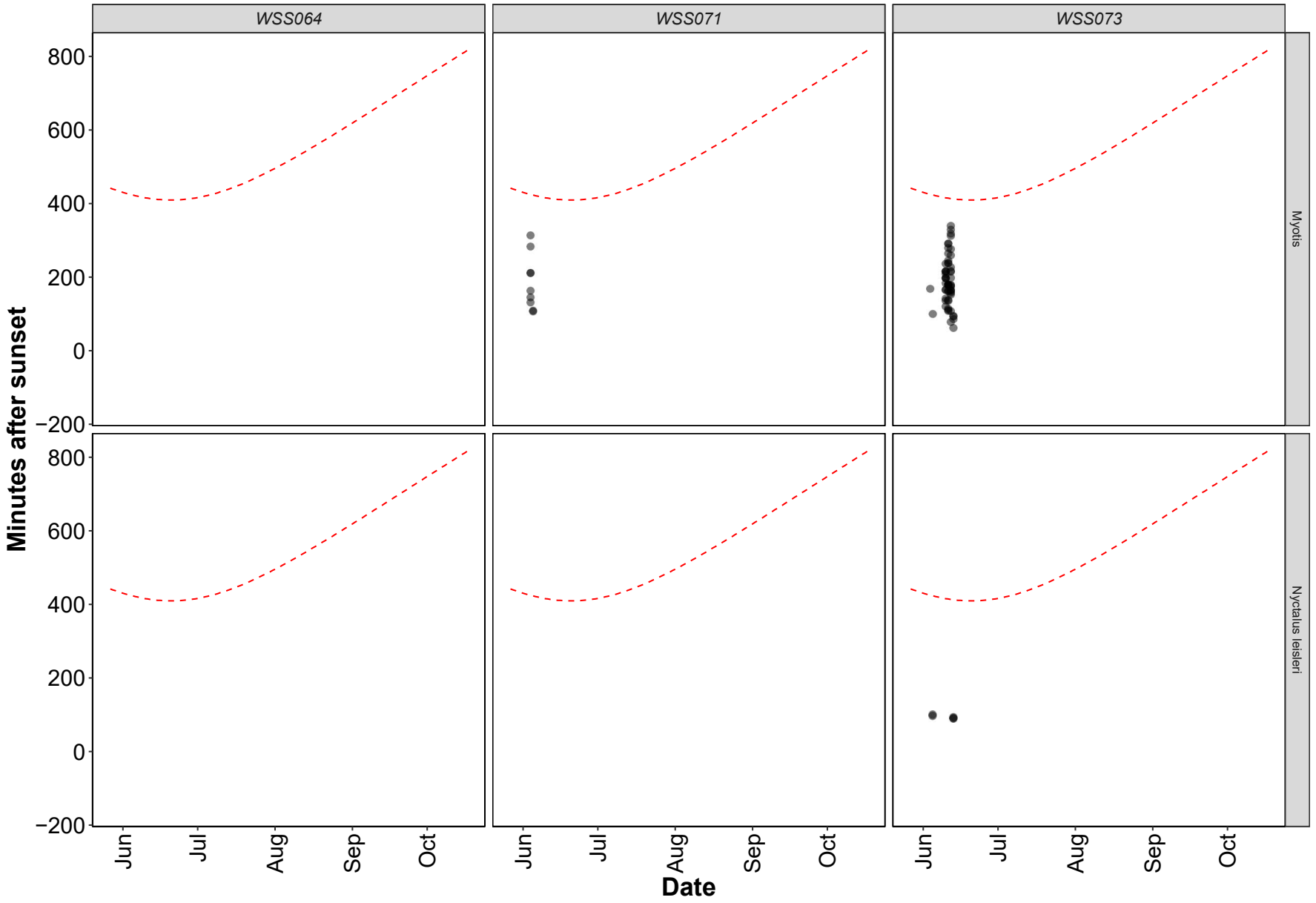

WSS031
WSS033
WSS034
Myotis
Nyctalus leisleri
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date

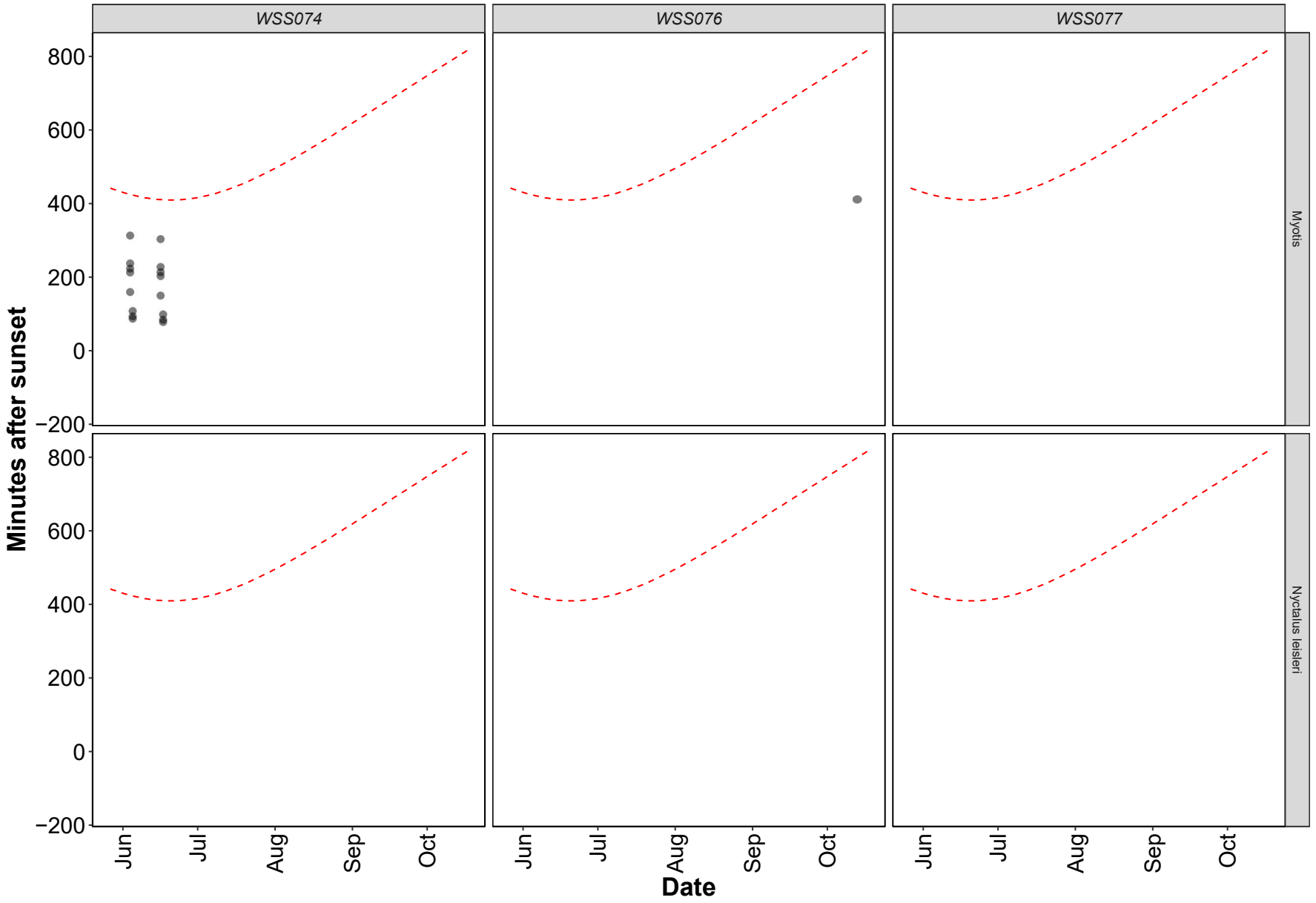

WSS035
WSS036
WSS037
Myotis
Nyctalus leisleri
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date

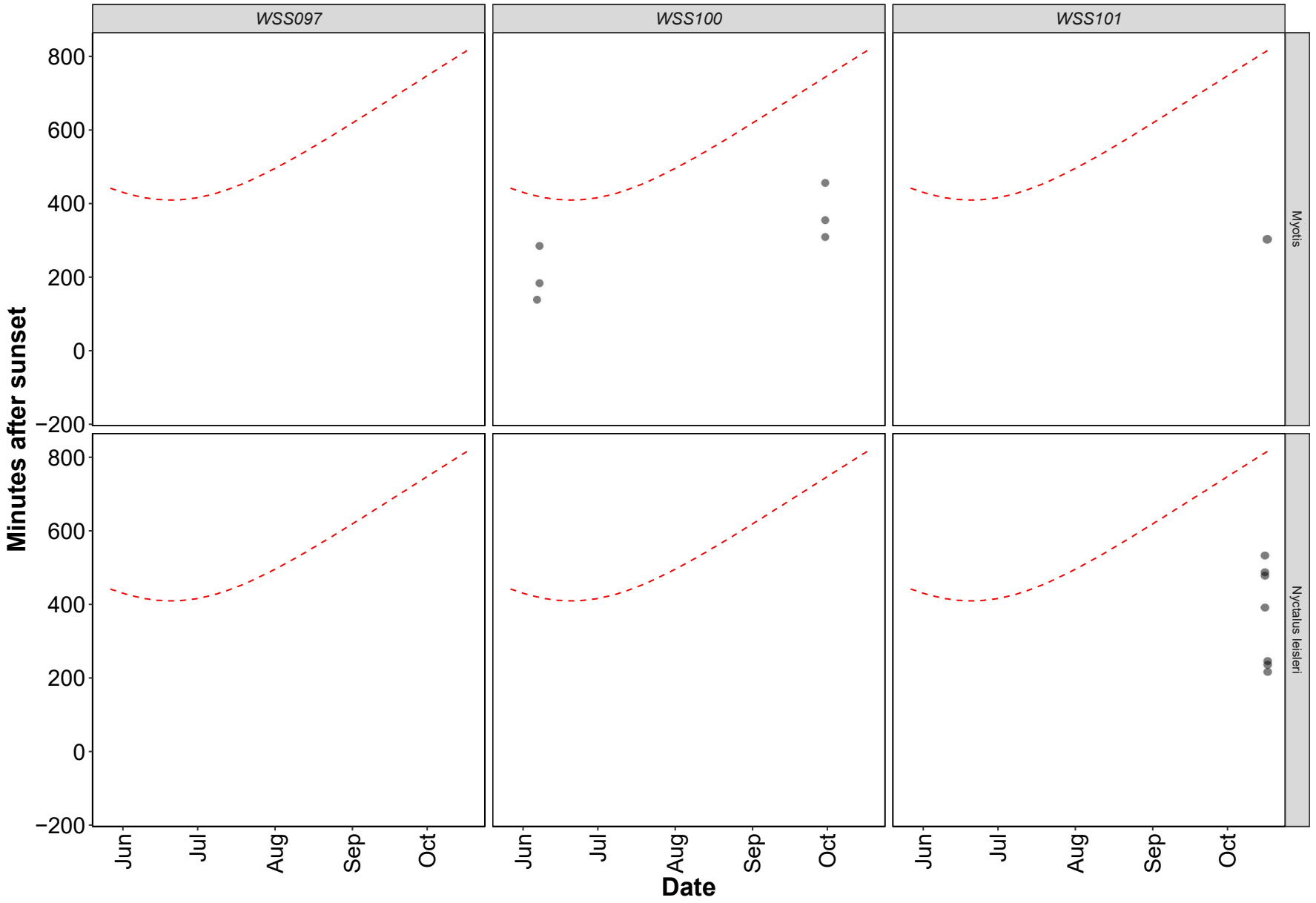

WSS038
WSS053
WSS056
Myotis
Nyctalus leisleri
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date

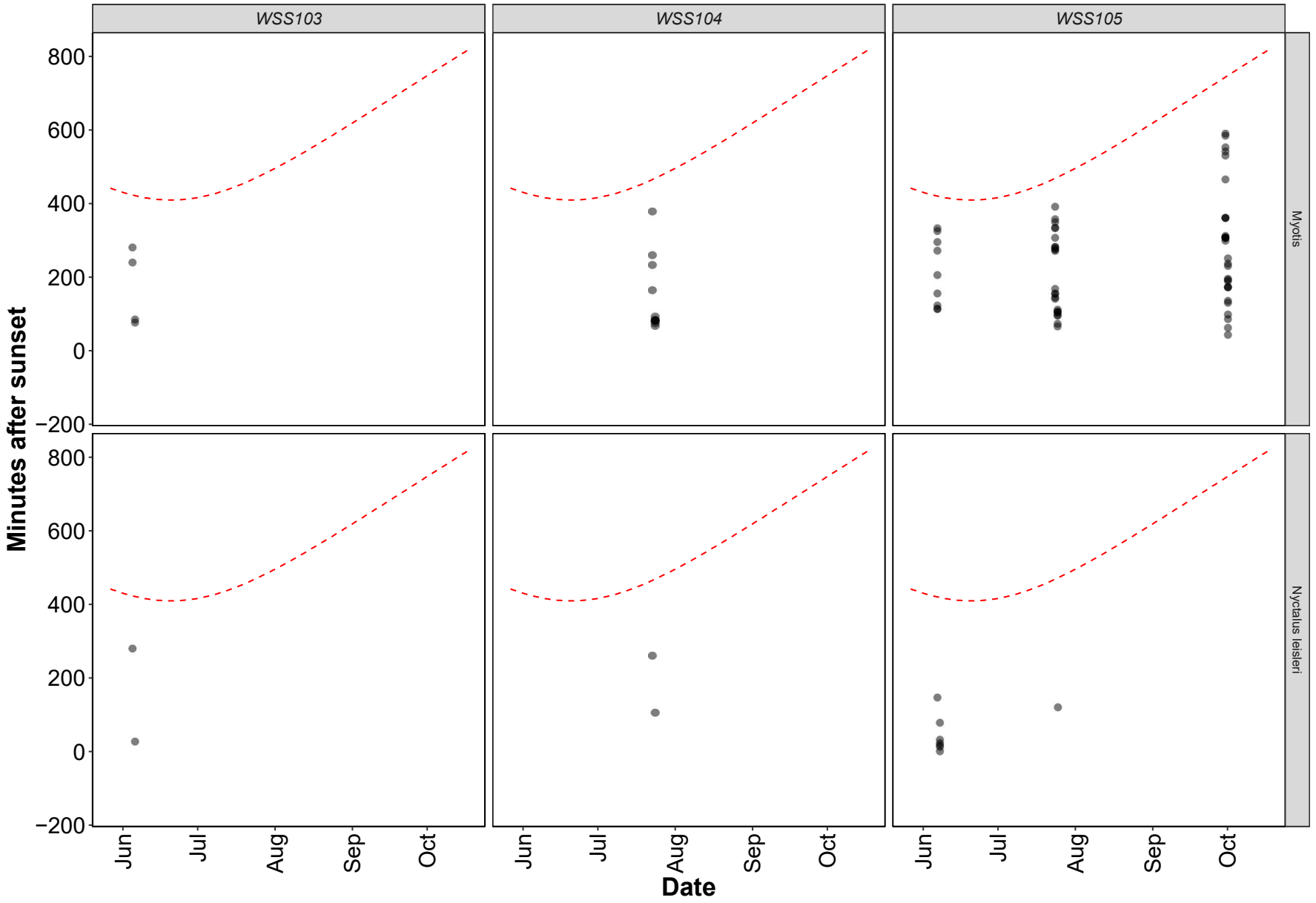

WSS058
WSS059
WSS060
Myotis
Nyctalus leisleri
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date

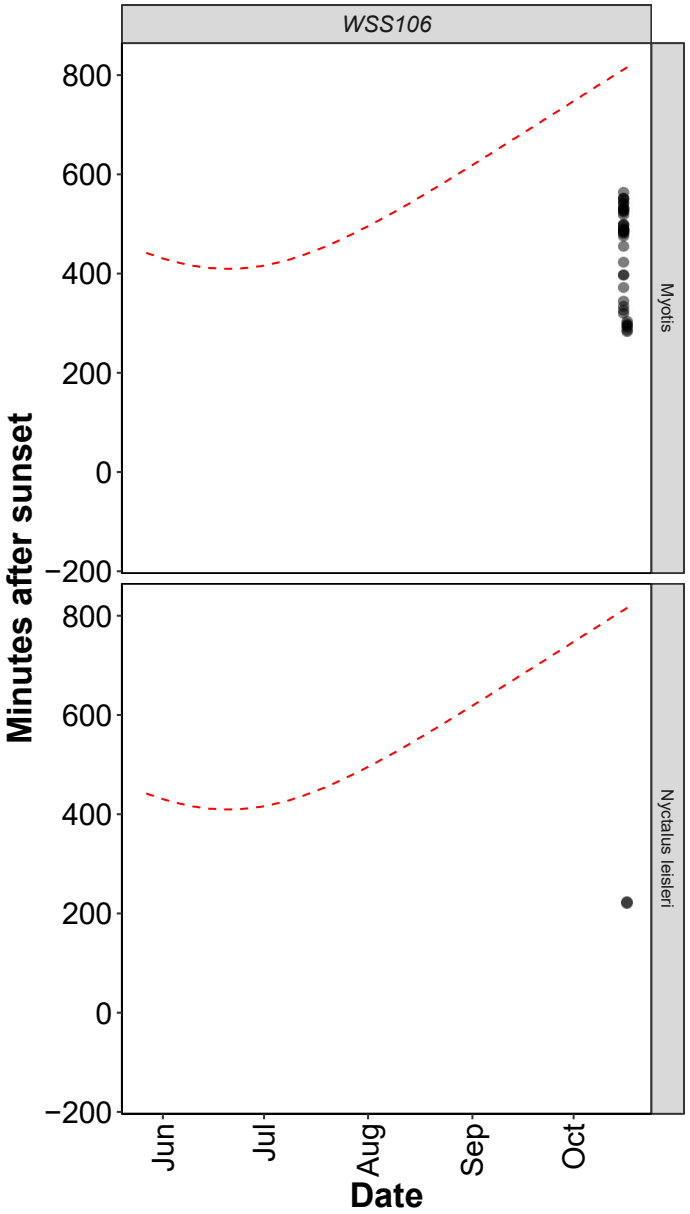

WSS061
WSS062
WSS063
Myotis
Nyctalus leisleri
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date

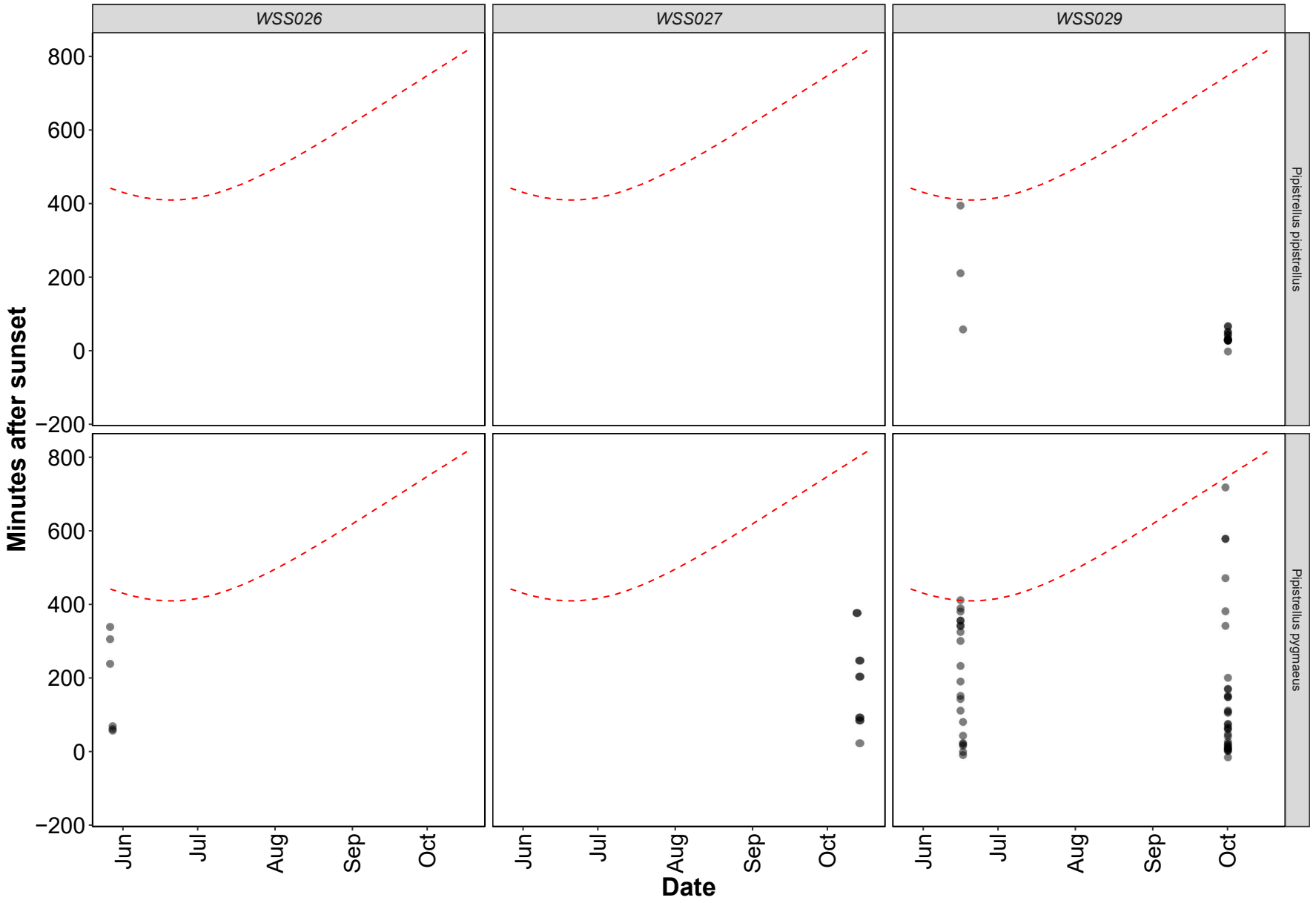

WSS064
WSS071
WSS073
Myotis
Nyctalus leisleri
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date

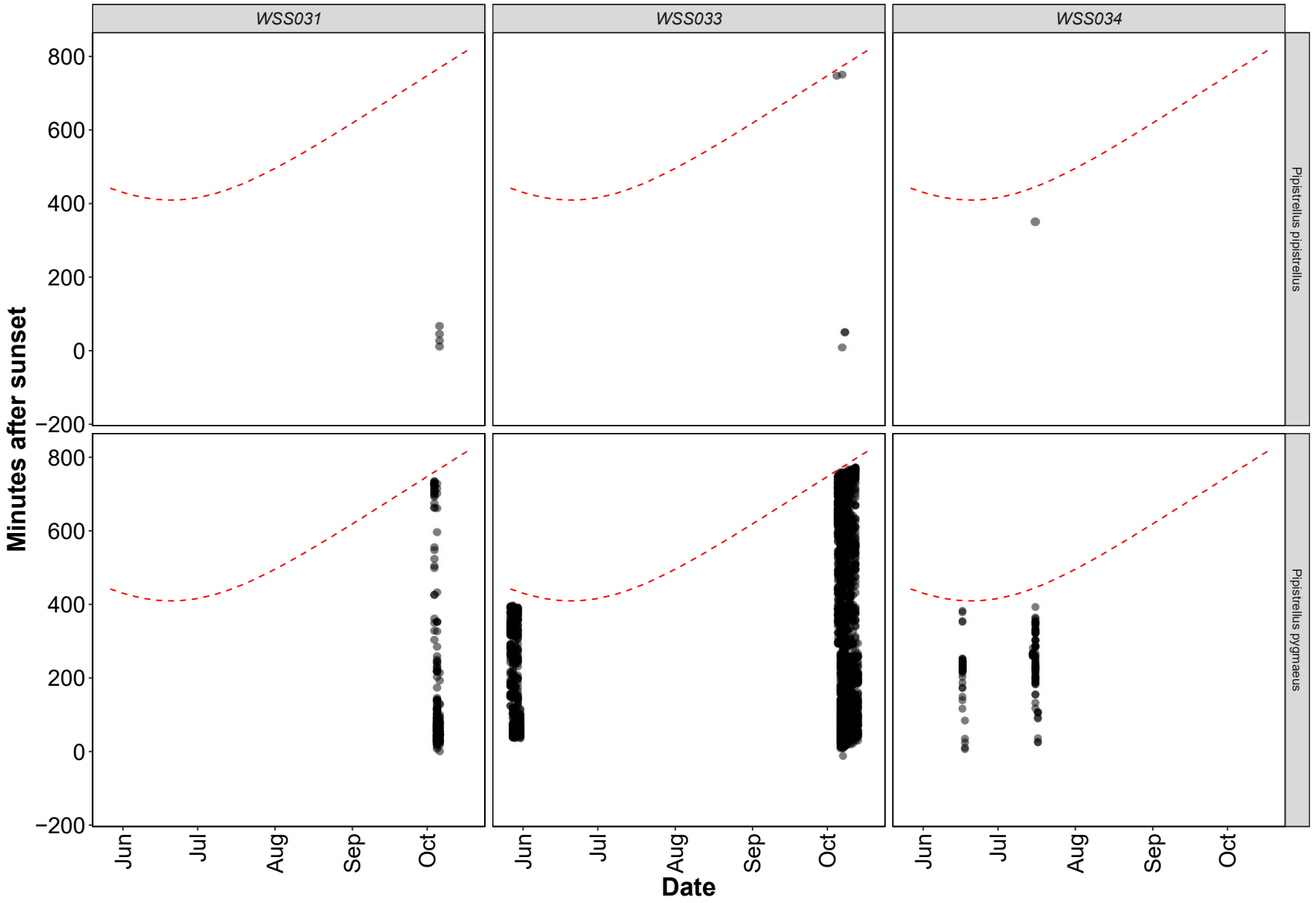

WSS074
WSS076
WSS077
Myotis
Nyctalus leisleri
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date

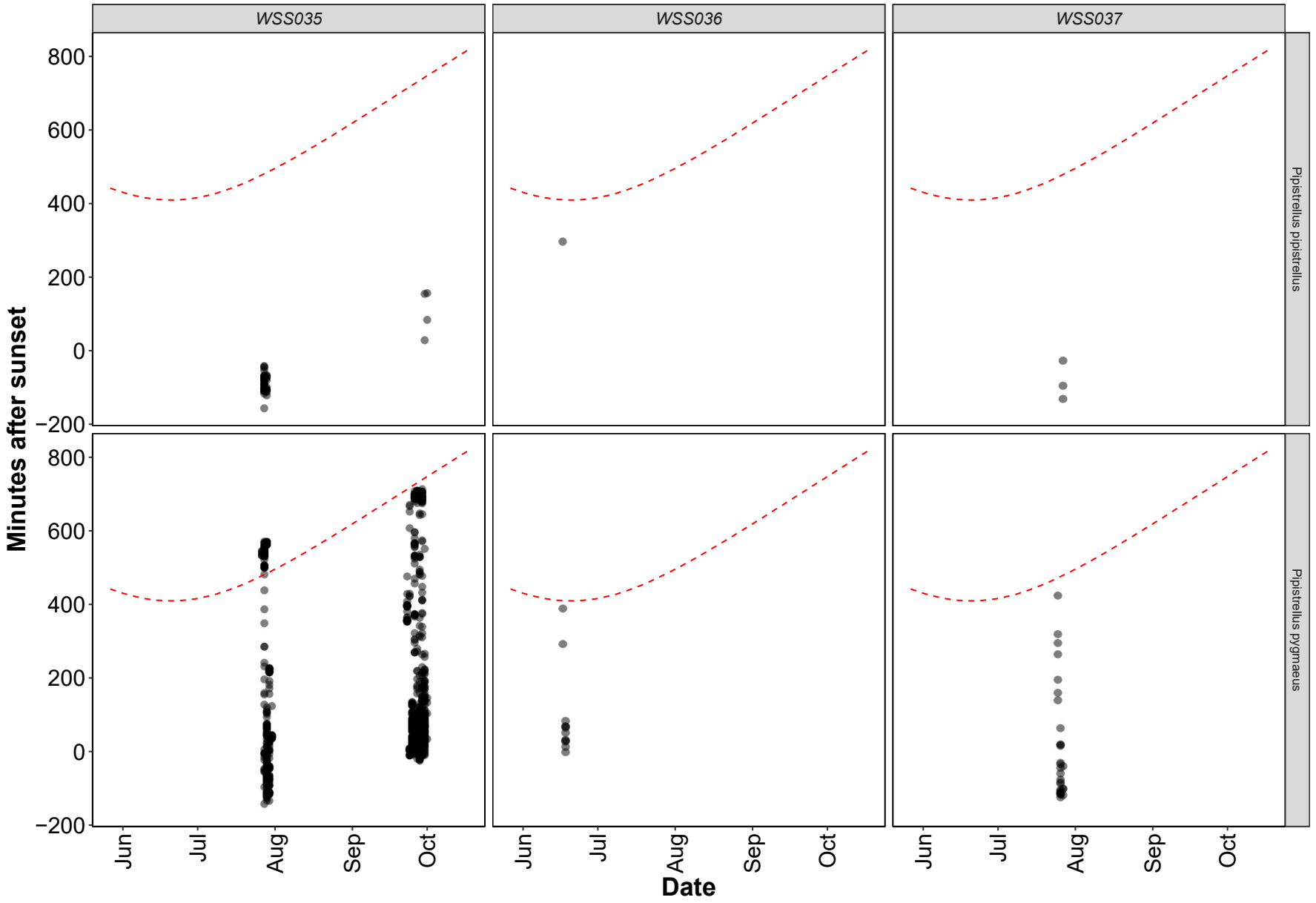

WSS097
WSS100
WSS101
Myotis
Nyctalus leisleri
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date

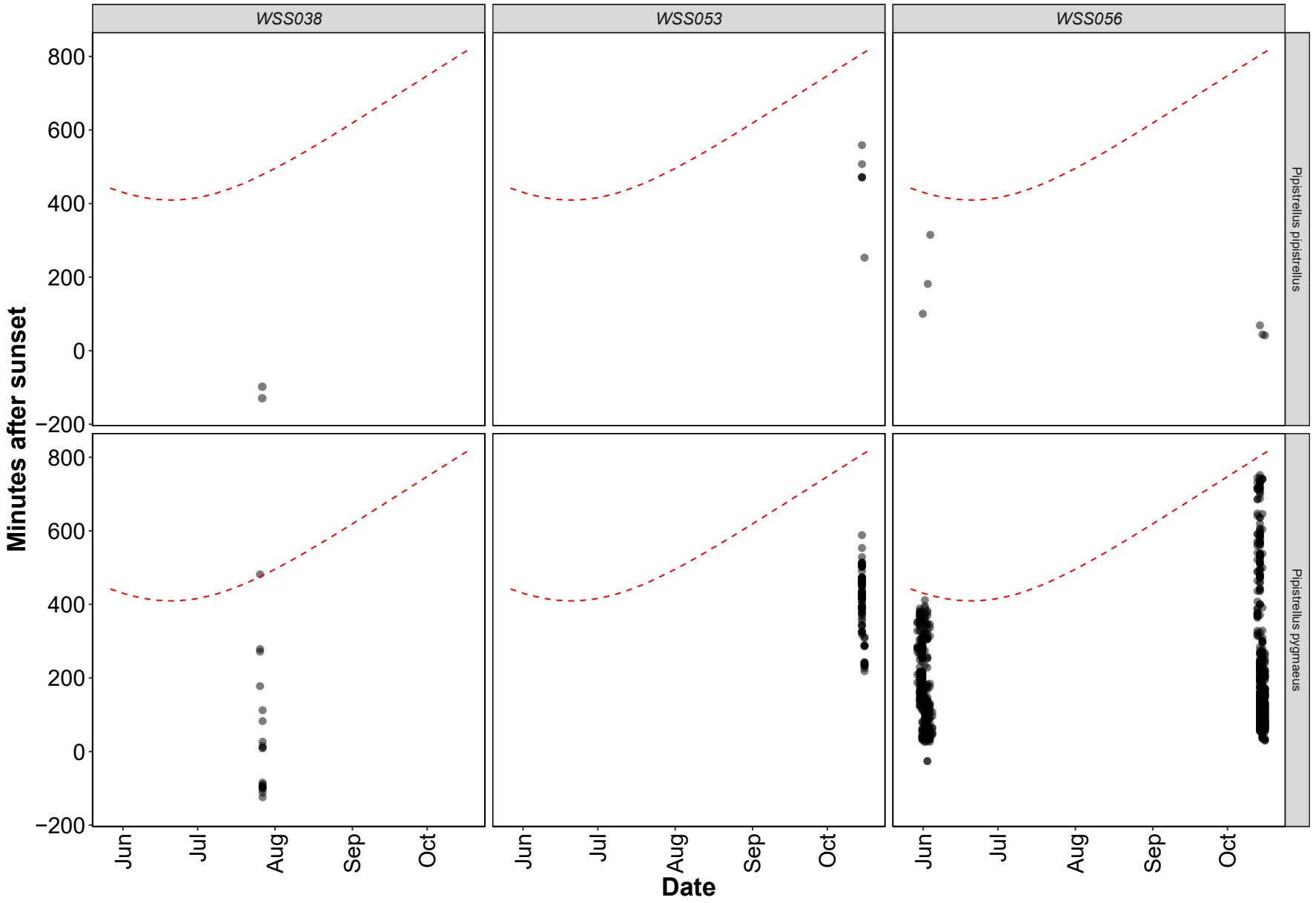

WSS103
WSS104
WSS105
Myotis
Nyctalus leisleri
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date

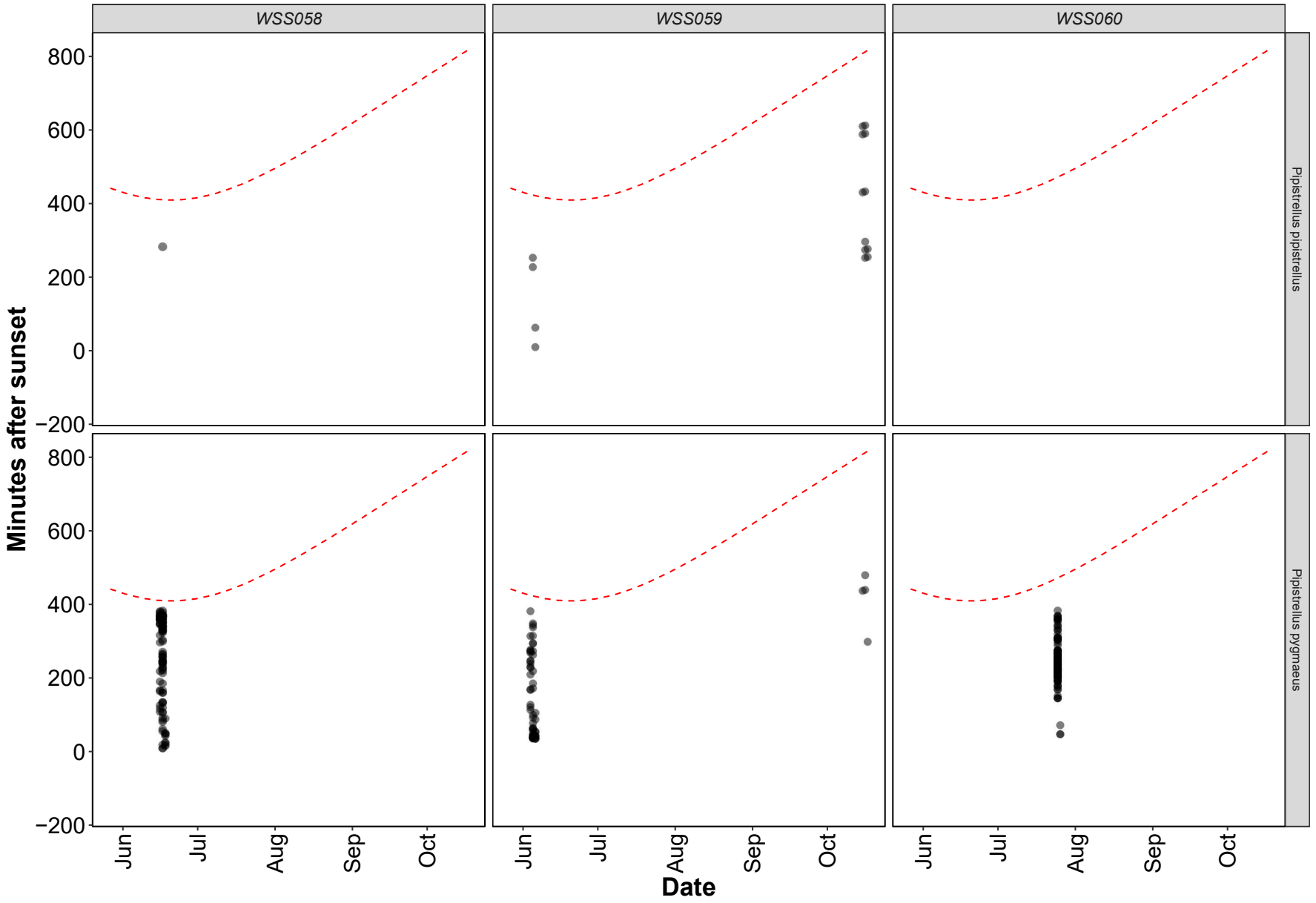

WSS106
Myotis
Nyctalus leisleri
800
600
400
200
0
−200
Minutes after sunset
Jun
Jul
Aug
Sep
Oct
Date

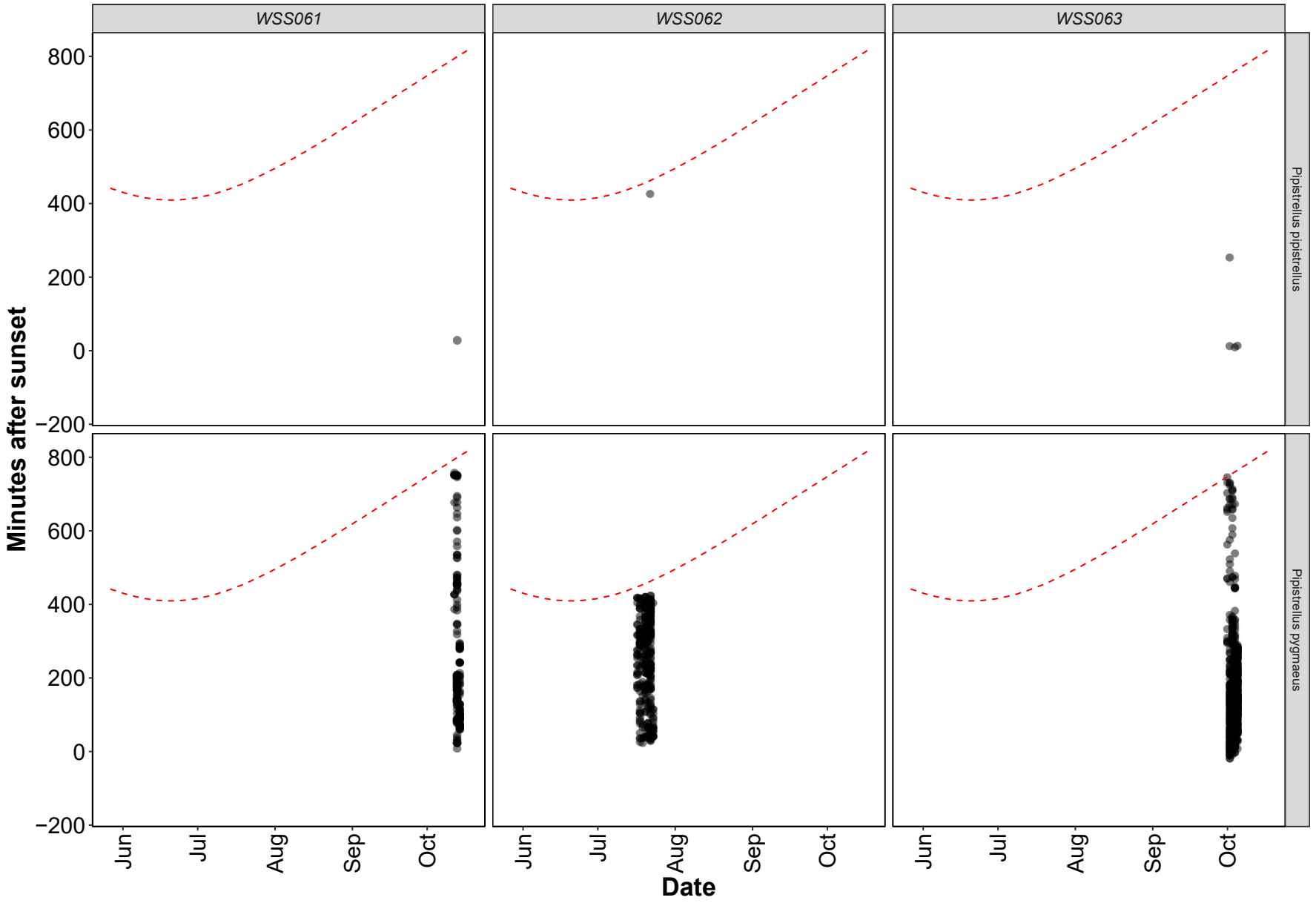

WSS026
WSS027
WSS029
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date

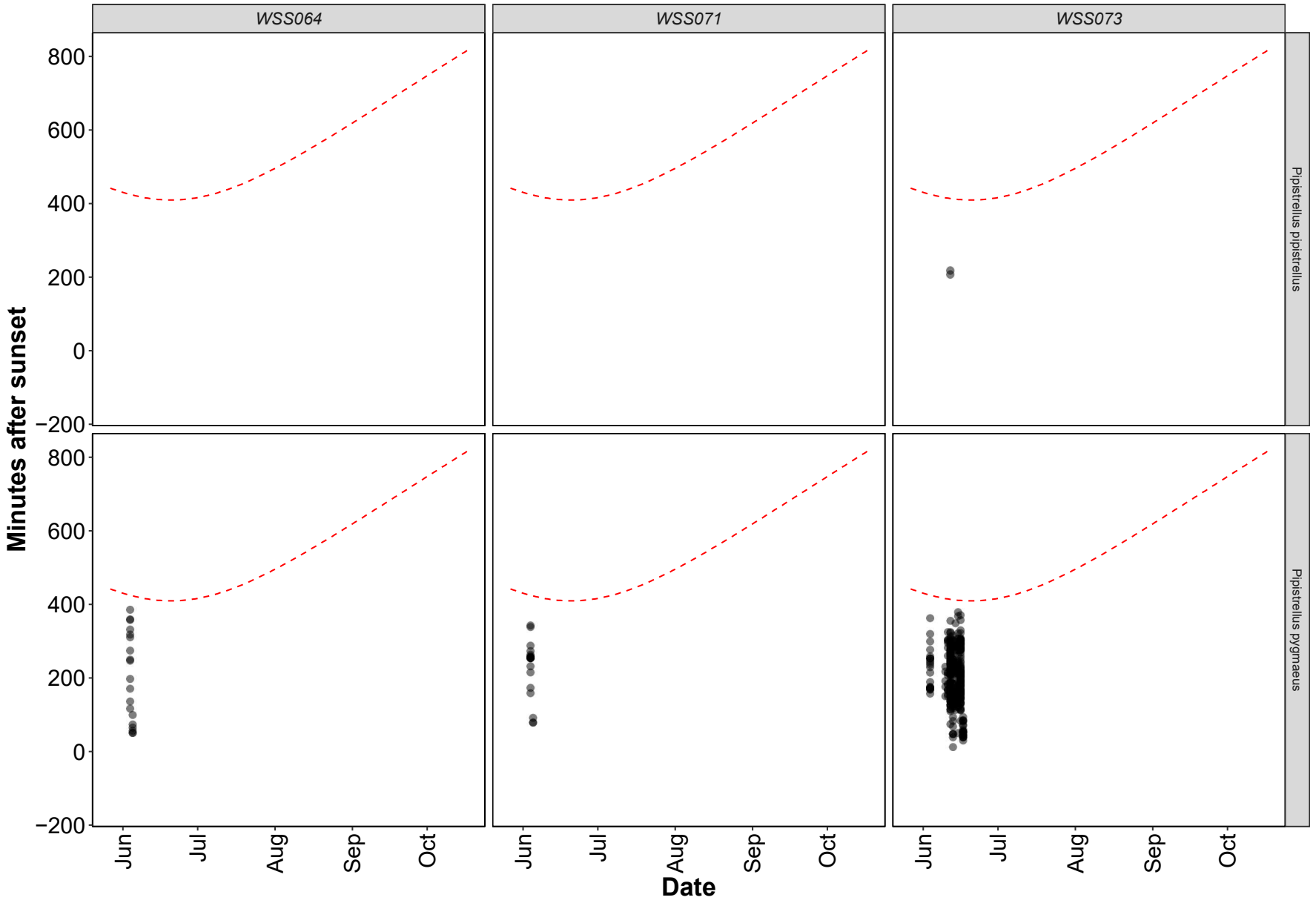

WSS031
WSS033
WSS034
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date

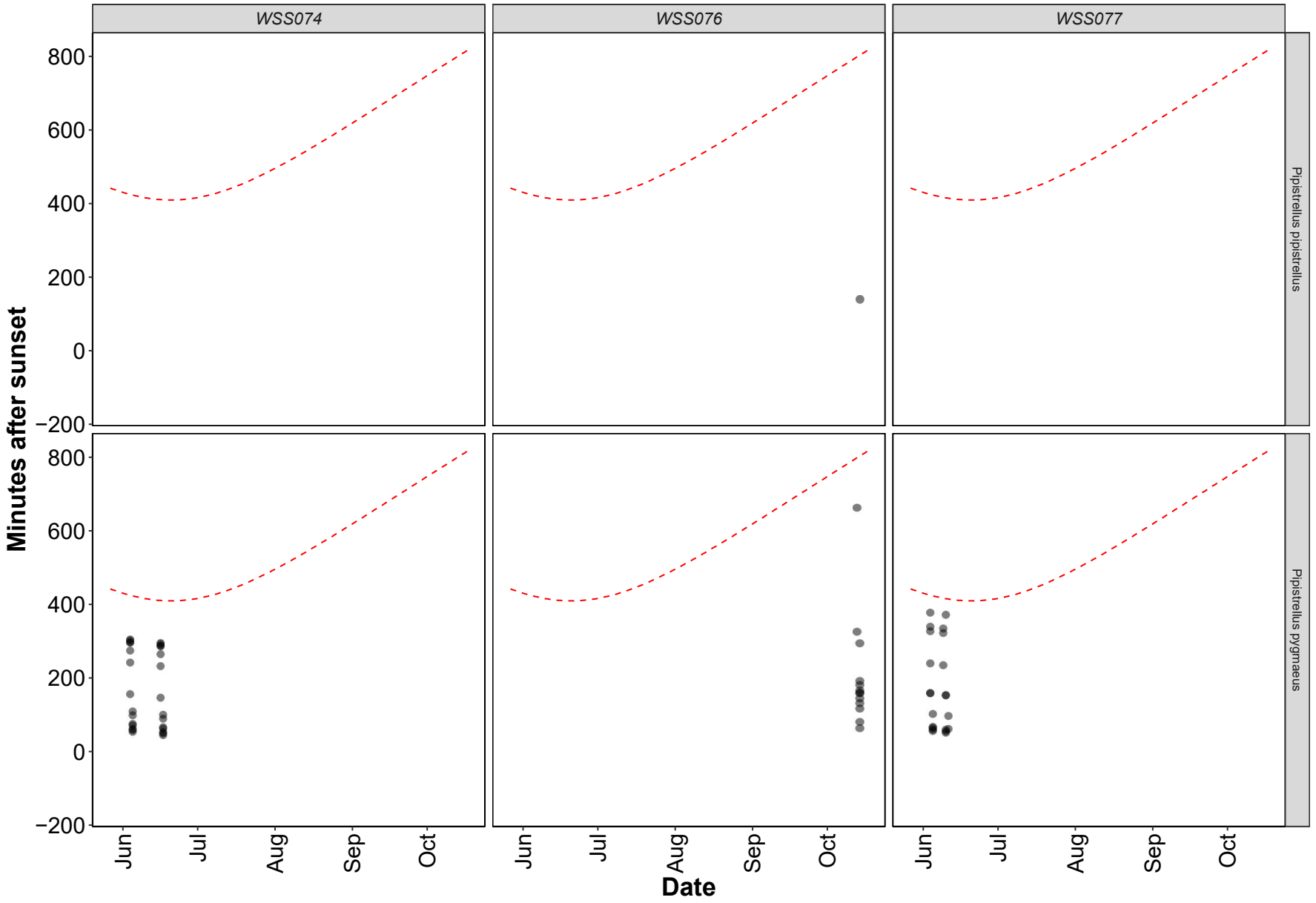

WSS035
WSS036
WSS037
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date

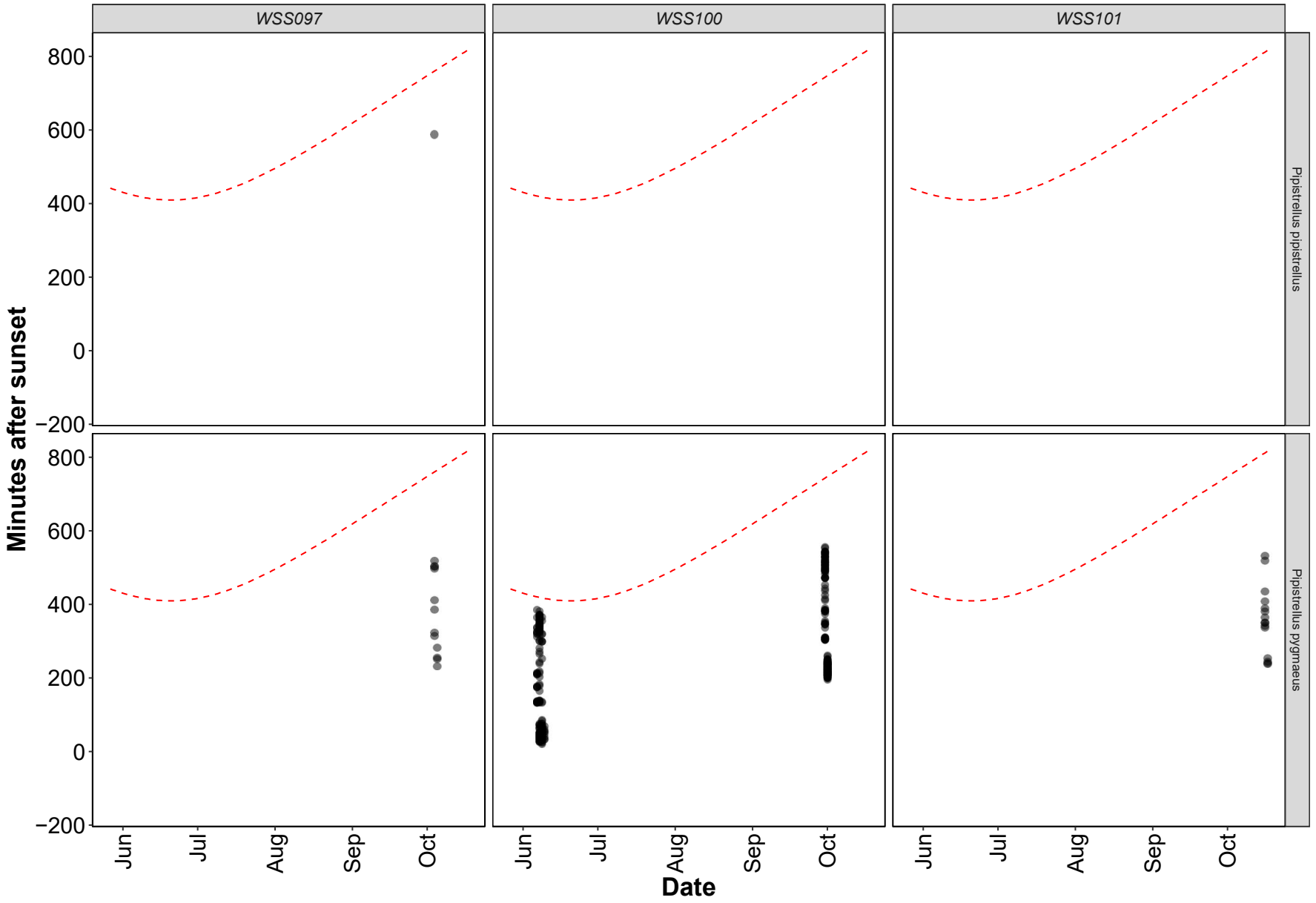

WSS038
WSS053
WSS056
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date


WSS058
WSS059
WSS060
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date


WSS061
WSS062
WSS063
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date


WSS064
WSS071
WSS073
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date


WSS074
WSS076
WSS077
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date


WSS097
WSS100
WSS101
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Minutes after sunset
800
600
400
200
0
−200
Jun
Jul
Aug
Sep
Oct
Date

Roost Emergence Time and Bat Observation

Based on: Russ, Jon. 2012. British Bat Calls a Guide to species Identification. Pelagic Publishing.

Bat Passes Potentially Indicating Close Proximity to a Roost (Russ 2012)

Table 12. Number of bat calls recorded before the upper time of the species-specific emergence time range, and which therefore may potentially indicate the presence of a nearby roost.

Table 12: Table continues below

Species	Detector ID	2024-06-02	2024-06-03	2024-06-04	2024-06-06	2024-06-08
Common pipistrelle	WSS029	0	0	0	0	0
Common pipistrelle	WSS031	0	0	0	0	0
Common pipistrelle	WSS033	0	0	0	0	0
Common pipistrelle	WSS035	0	0	0	0	0
Common pipistrelle	WSS037	0	0	0	0	0
Common pipistrelle	WSS038	0	0	0	0	0
Common pipistrelle	WSS059	0	0	0	1	0
Common pipistrelle	WSS061	0	0	0	0	0
Common pipistrelle	WSS063	0	0	0	0	0
Soprano pipistrelle	WSS027	0	0	0	0	0
Soprano pipistrelle	WSS029	0	0	0	0	0
Soprano pipistrelle	WSS031	0	0	0	0	0
Soprano pipistrelle	WSS033	0	0	0	0	0
Soprano pipistrelle	WSS034	0	0	0	0	0
Soprano pipistrelle	WSS035	0	0	0	0	0
Soprano pipistrelle	WSS036	0	0	0	0	0
Soprano pipistrelle	WSS037	0	0	0	0	0
Soprano pipistrelle	WSS038	0	0	0	0	0
Soprano pipistrelle	WSS056	1	2	1	0	0
Soprano pipistrelle	WSS058	0	0	0	0	0
Soprano pipistrelle	WSS061	0	0	0	0	0
Soprano pipistrelle	WSS062	0	0	0	0	0
Soprano pipistrelle	WSS063	0	0	0	0	0
Soprano pipistrelle	WSS073	0	0	0	0	0
Soprano pipistrelle	WSS100	0	0	0	0	1

Species	Detector ID	2024-06-02	2024-06-03	2024-06-04	2024-06-06	2024-06-08
Soprano pipistrelle	WSS104	0	0	0	0	0
Soprano pipistrelle	WSS105	0	0	0	0	2
Leisler’s	WSS034	0	0	0	0	0
Leisler’s	WSS035	0	0	0	0	0
Leisler’s	WSS038	0	0	0	0	0
Leisler’s	WSS063	0	0	0	0	0
Leisler’s	WSS105	0	0	0	0	3
Brown long-eared	WSS029	0	0	0	0	0
Brown long-eared	WSS033	0	0	0	0	0
Brown long-eared	WSS037	0	0	0	0	0
Brown long-eared	WSS038	0	0	0	0	0
Brown long-eared	WSS063	0	0	0	0	0
Myotis	WSS033	0	0	0	0	0
Myotis	WSS035	0	0	0	0	0
Myotis	WSS037	0	0	0	0	0
Myotis	WSS058	0	0	0	0	0
Myotis	WSS073	0	0	0	0	0
Myotis	WSS104	0	0	0	0	0
Myotis	WSS105	0	0	0	0	0

Table 13: Table continues below

2024-06-09	2024-06-13	2024-06-17	2024-06-18	2024-07-17	2024-07-18	2024-07-19
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	5	0	0	0	0

2024-06-09	2024-06-13	2024-06-17	2024-06-18	2024-07-17	2024-07-18	2024-07-19
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	3	2	0	0
0	0	0	0	0	0	0
0	0	0	3	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	3	4	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	1	1
0	0	0	0	0	0	0
0	1	0	0	0	0	0
2	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	1	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	1	0	0	0
0	1	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

Table 14: Table continues below

2024-07-24	2024-07-25	2024-07-26	2024-07-27	2024-07-28	2024-07-29	2024-07-30
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	54	12	0
0	0	0	3	0	0	0
0	0	0	2	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	14	232	59
0	0	0	0	0	0	0
0	0	18	4	0	0	0
0	0	0	13	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
2	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	3	4	0	0
0	0	0	4	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

2024-07-24	2024-07-25	2024-07-26	2024-07-27	2024-07-28	2024-07-29	2024-07-30
0	0	2	0	0	0	0
0	0	0	2	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	13	0	0	0
0	0	1	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
1	0	0	0	0	0	0
0	1	0	0	0	0	0

Table 15: Table continues below

2024-09-24	2024-09-25	2024-09-26	2024-09-27	2024-09-28	2024-09-29	2024-09-30
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	1
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
31	60	4	12	135	45	16
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

2024-09-24	2024-09-25	2024-09-26	2024-09-27	2024-09-28	2024-09-29	2024-09-30
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

Table 16: Table continues below

2024-10-01	2024-10-02	2024-10-03	2024-10-04	2024-10-05	2024-10-06	2024-10-07
16	0	0	0	0	0	0
0	0	0	0	0	2	0
0	0	0	0	0	0	1
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

2024-10-01	2024-10-02	2024-10-03	2024-10-04	2024-10-05	2024-10-06	2024-10-07
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	1	0	1	1	0	0
0	0	0	0	0	0	0
12	0	0	0	0	0	0
0	0	0	0	20	5	0
0	0	0	0	0	15	33
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	145	95	20	2	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
5	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	2	0	0
0	0	0	0	0	0	0
1	0	0	0	0	0	0
0	0	0	0	0	1	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	1	0	0	0	0	0
0	0	0	0	0	0	1
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0

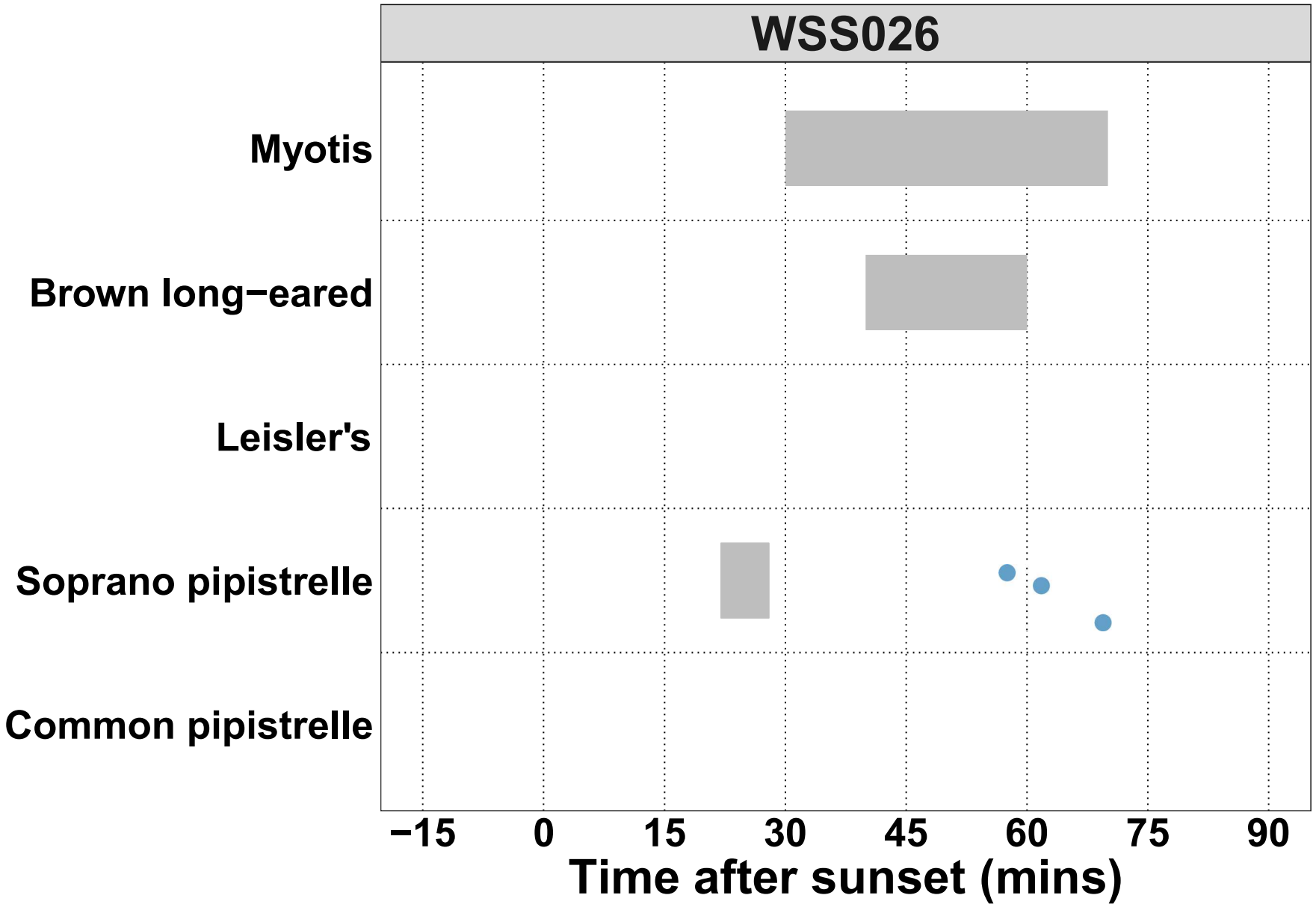
2024-10-01	2024-10-02	2024-10-03	2024-10-04	2024-10-05	2024-10-06	2024-10-07
0	0	0	0	0	0	0
2	0	0	0	0	0	0

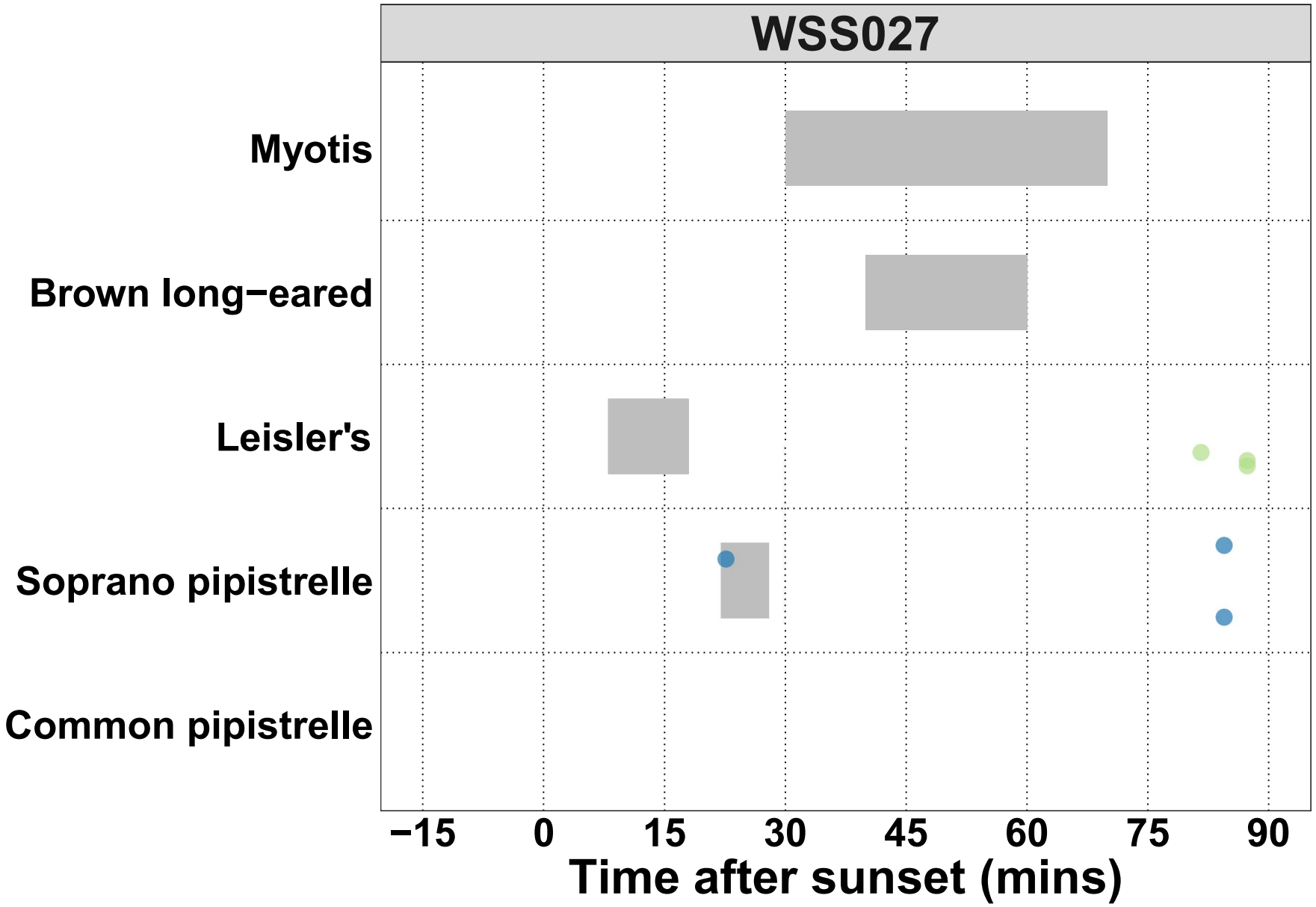
2024-10-08	2024-10-09	2024-10-10	2024-10-11	2024-10-13	2024-10-14
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	1	0
0	0	0	0	0	0
0	0	0	0	0	1
0	0	0	0	0	0
0	0	0	0	0	0
13	2	1	1	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	9	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

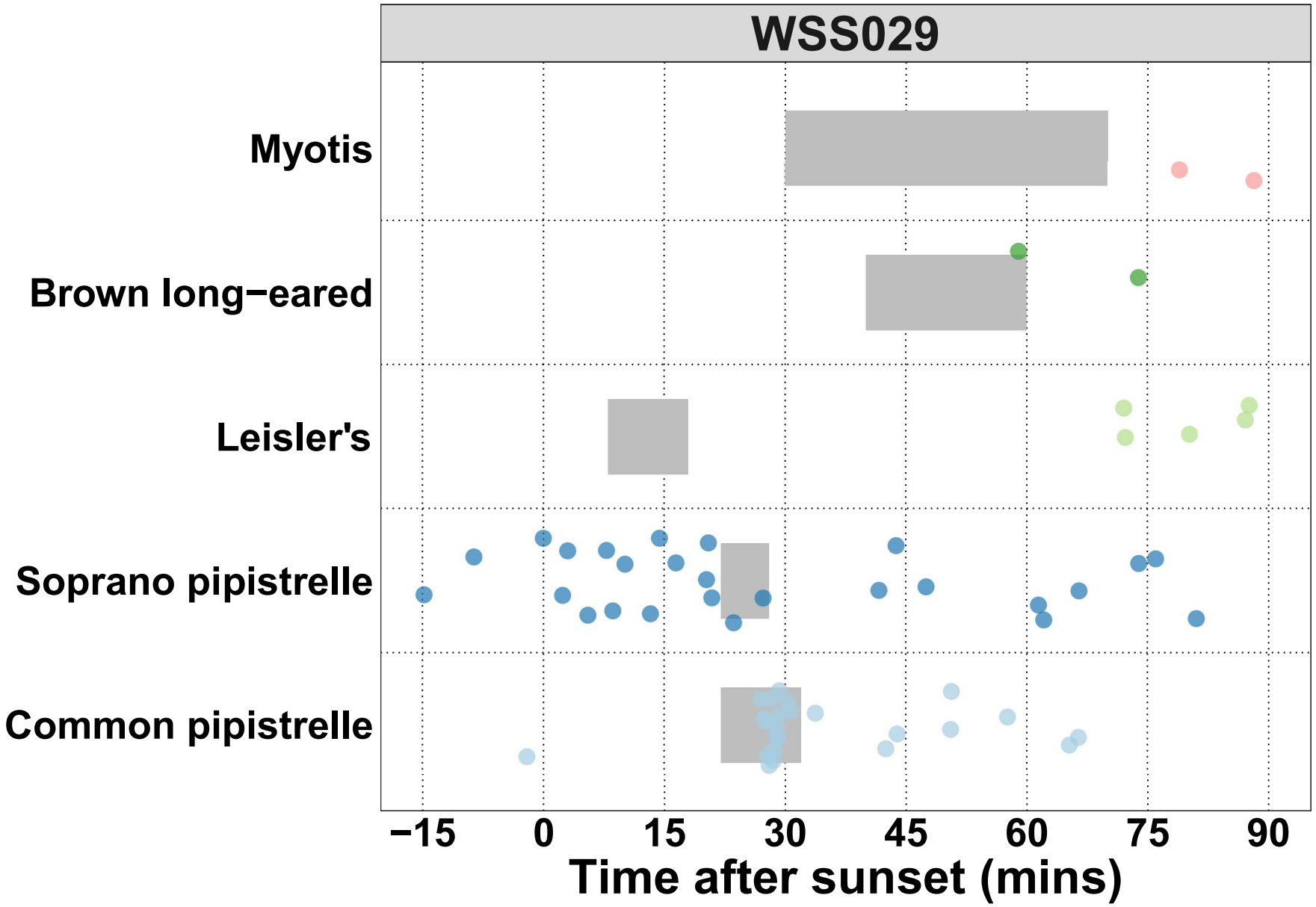
2024-10-08	2024-10-09	2024-10-10	2024-10-11	2024-10-13	2024-10-14
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
1	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

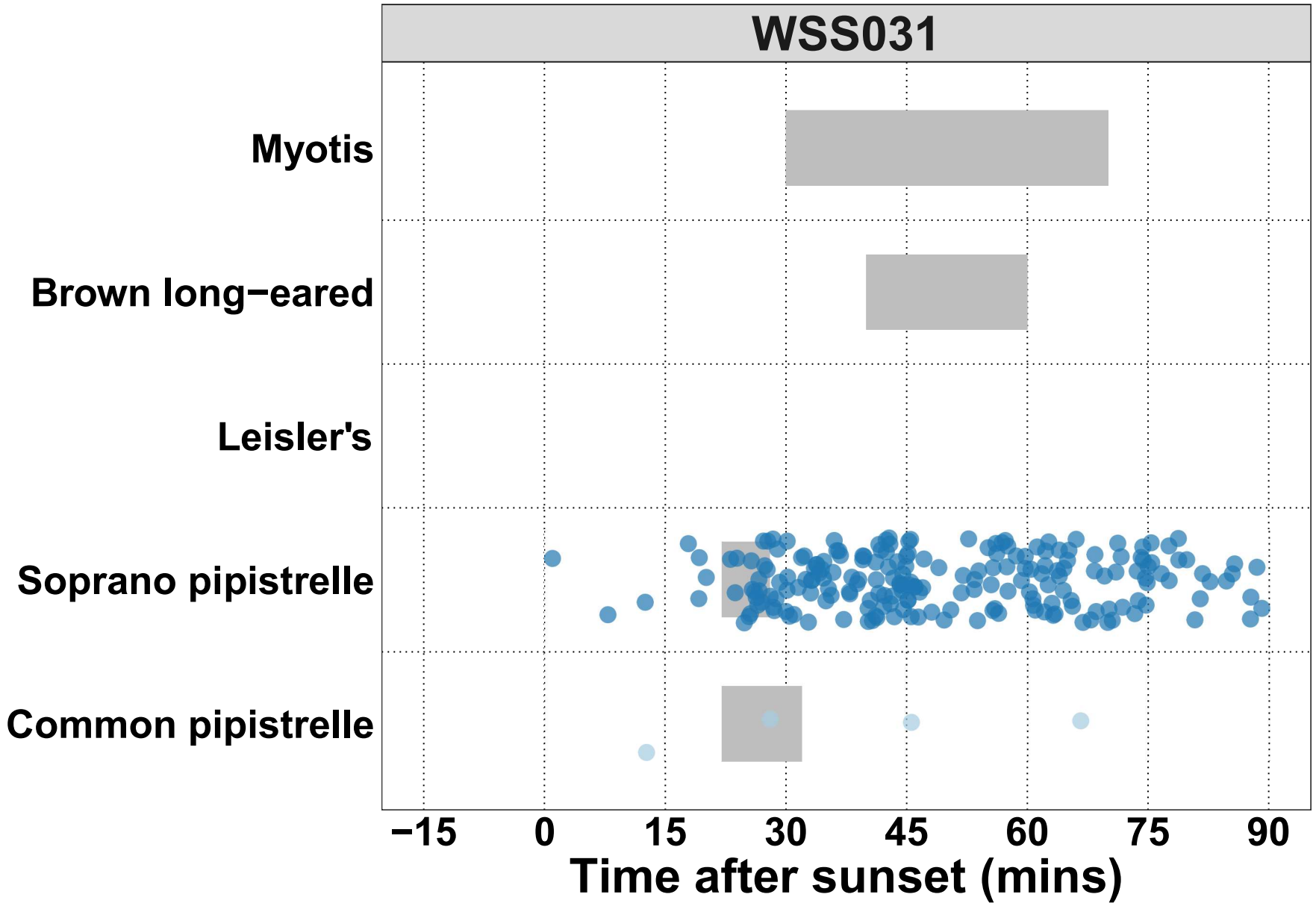
Bat Passes Potentially Indicating Close Proximity to a Roost (Russ 2012)

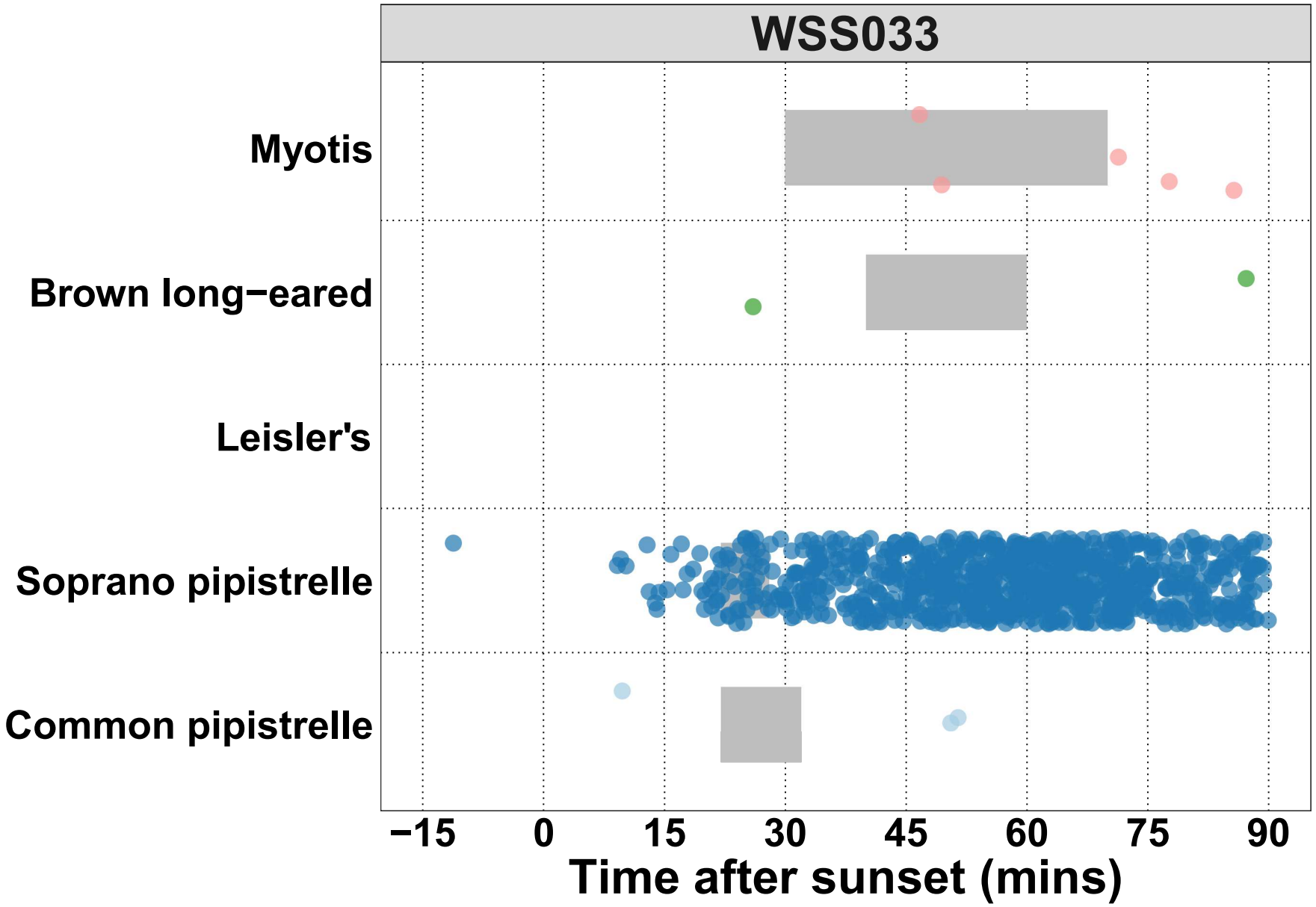
Figure 8. Time from 15 minutes before to 90 minutes after sunset. Species-specific emergence time ranges are shown as grey bars. Bat passes overlapping species-specific grey bars, or occuring earlier than this time range, may potentially indicate the presence of a nearby roost.

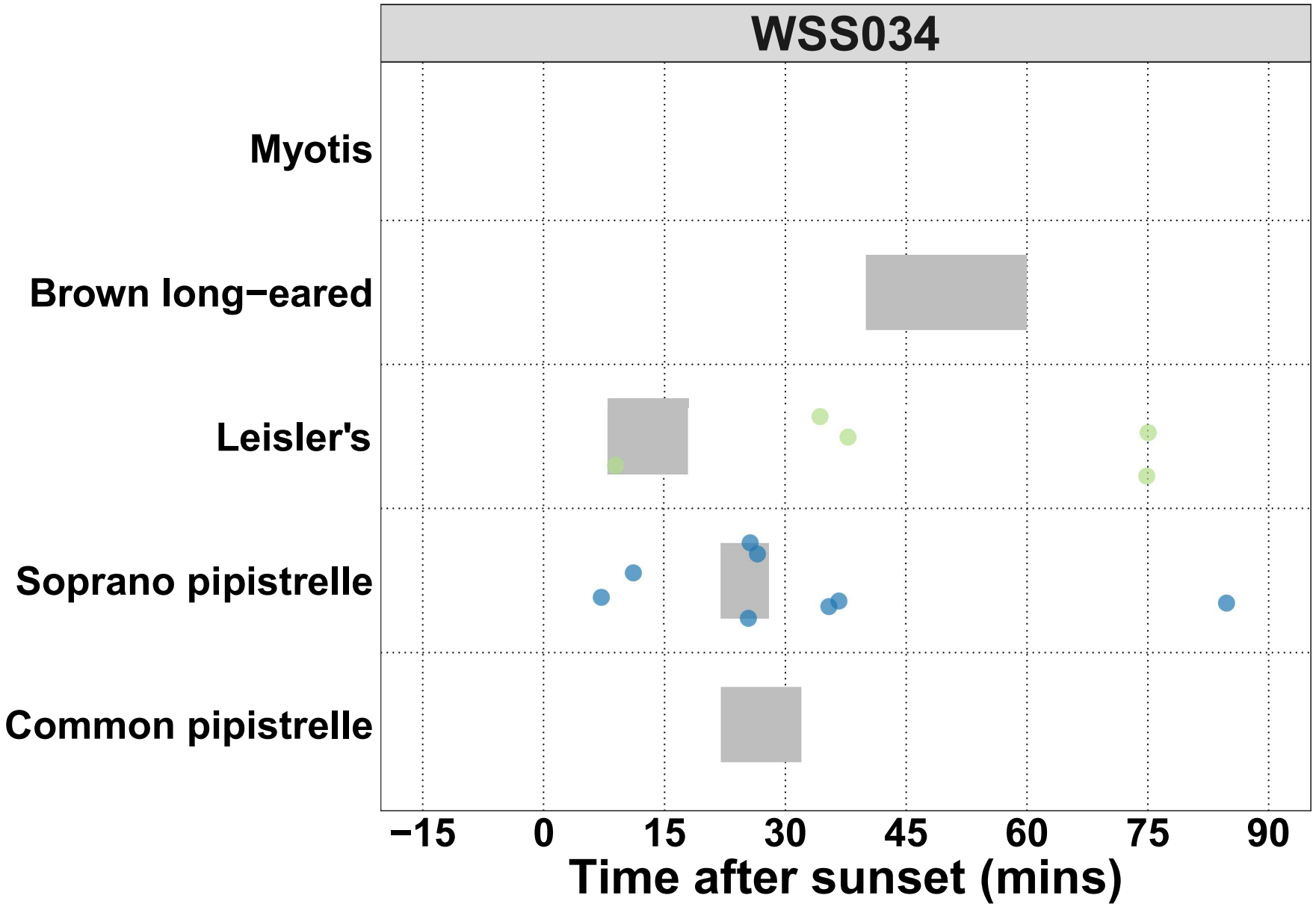

WSS026
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

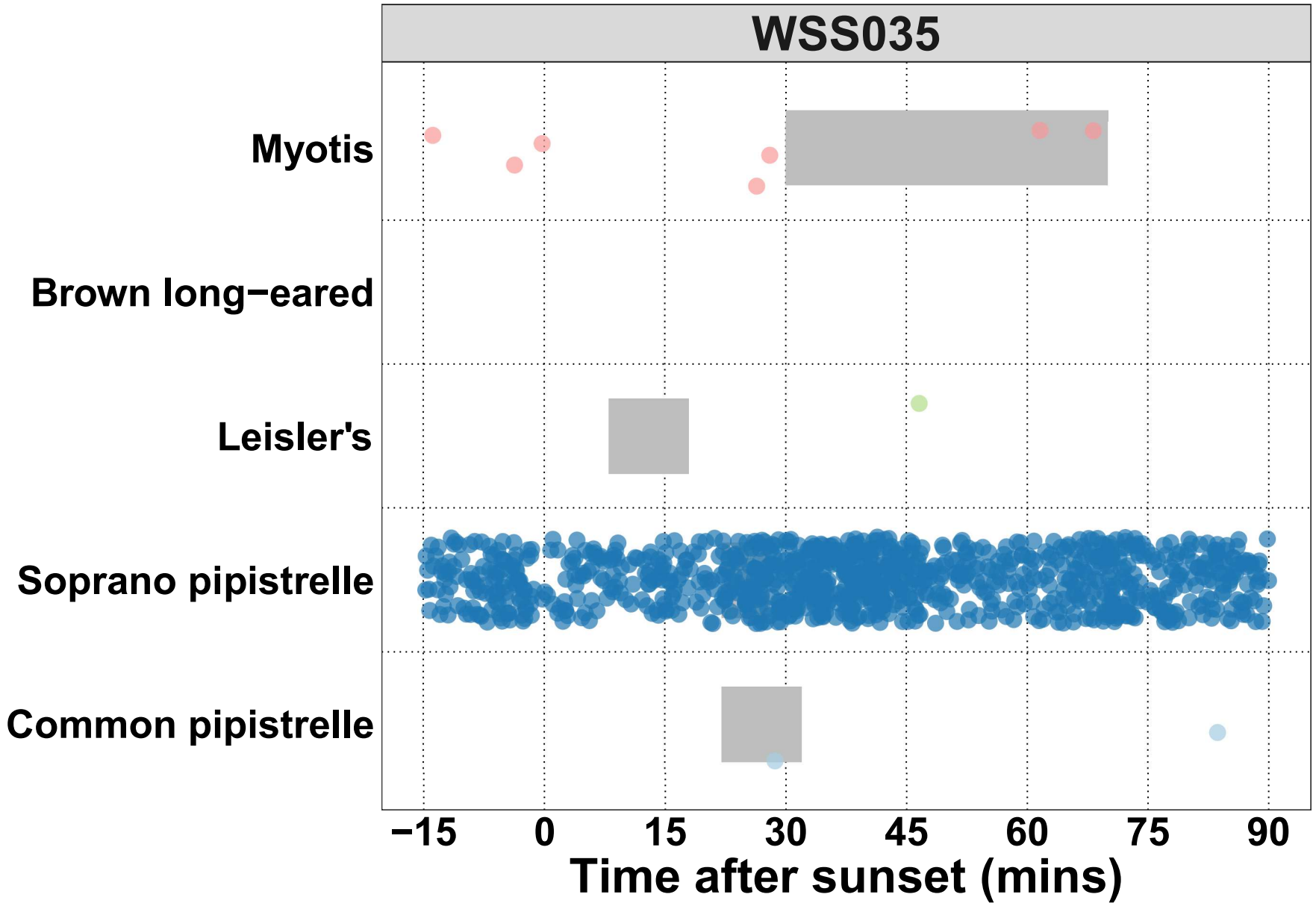

WSS027
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

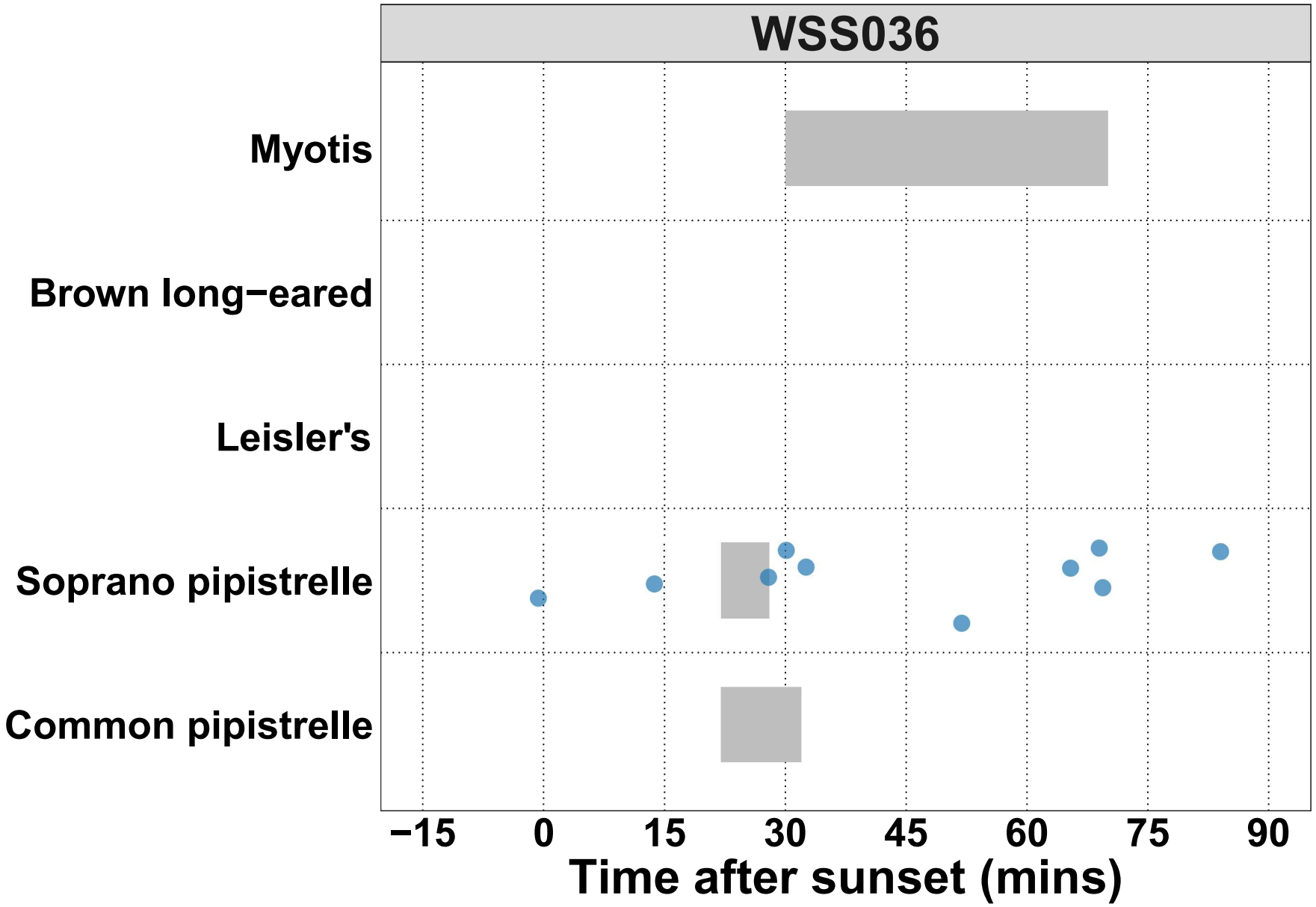

WSS029
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

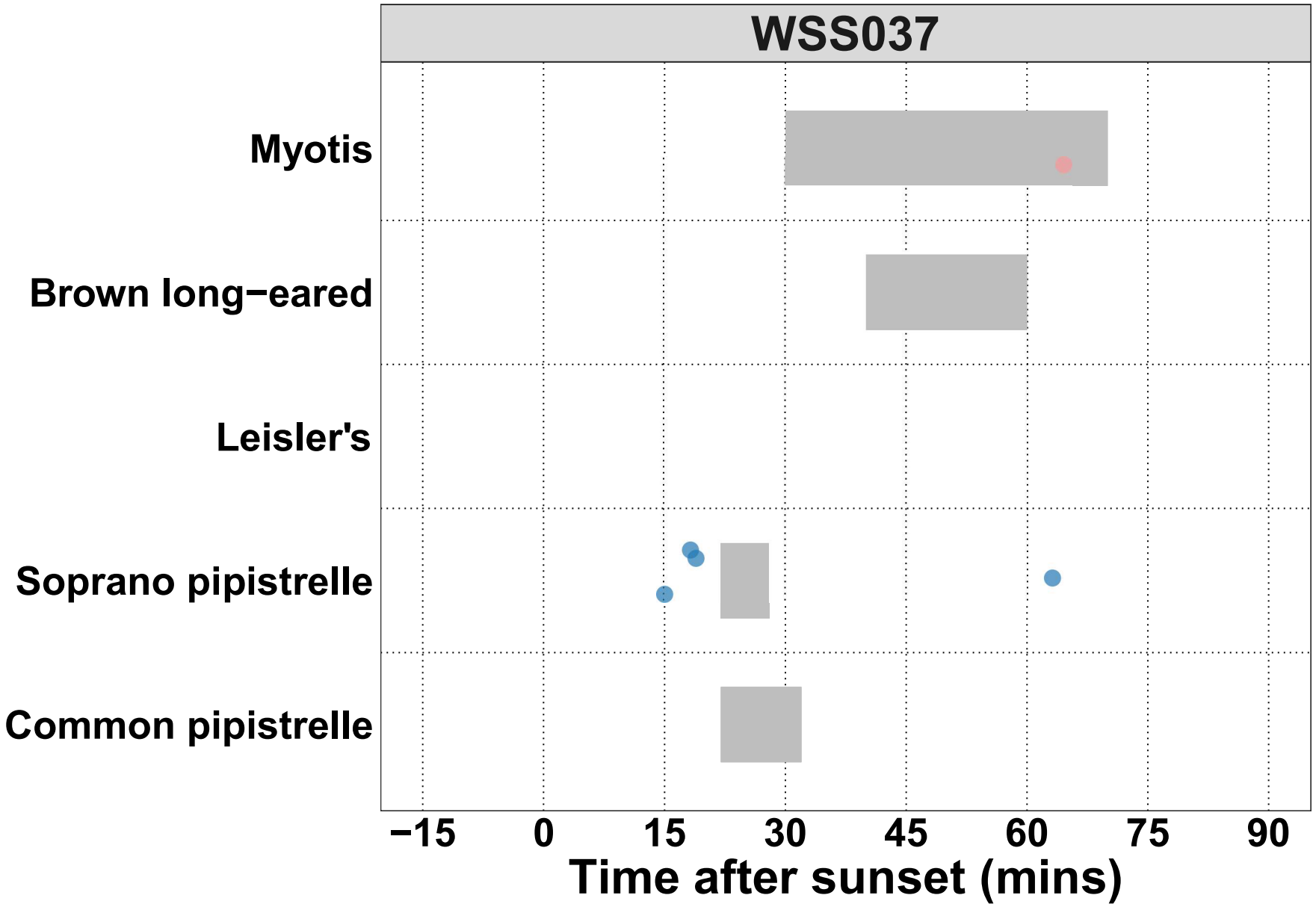

WSS031
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

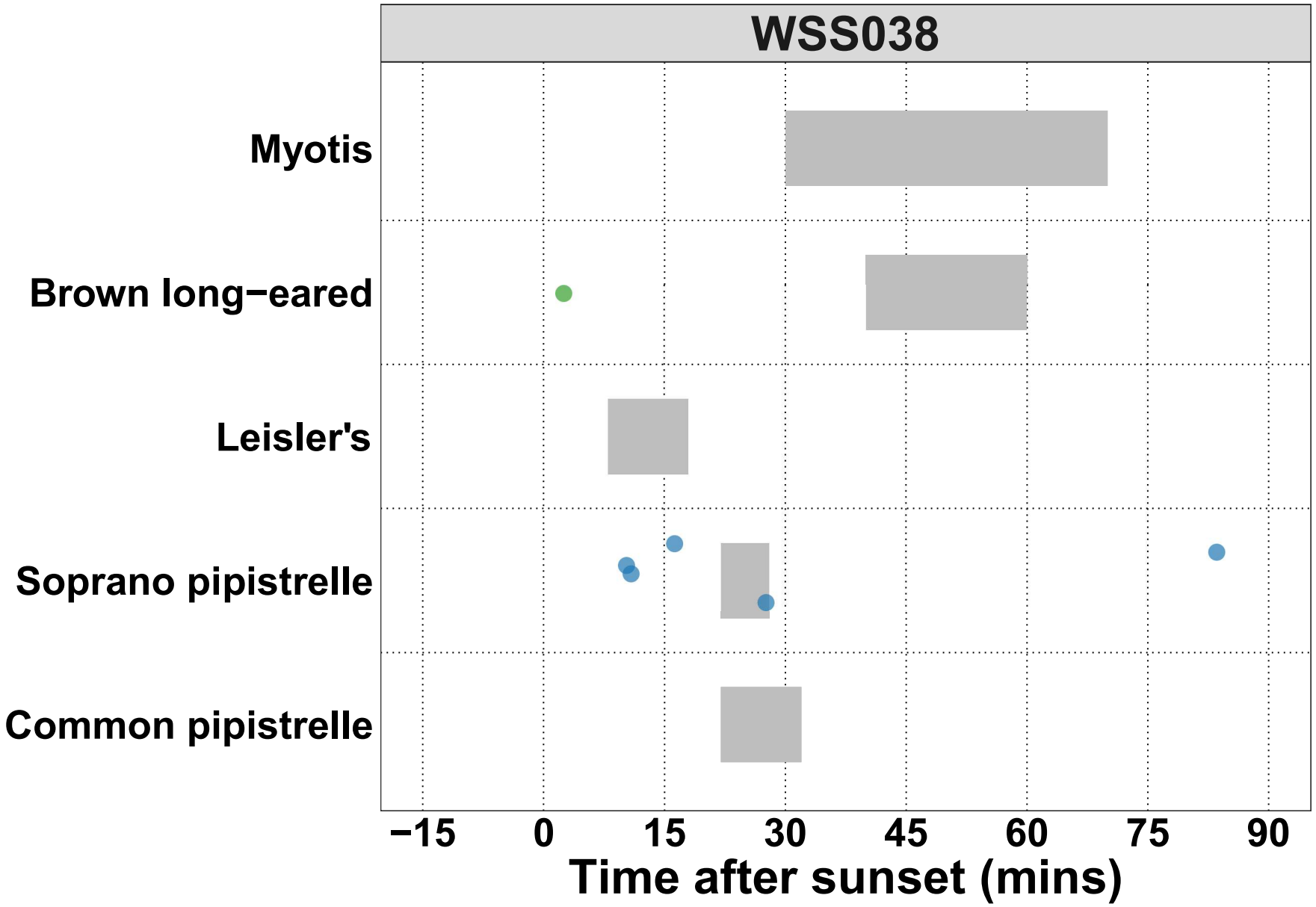

WSS033
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

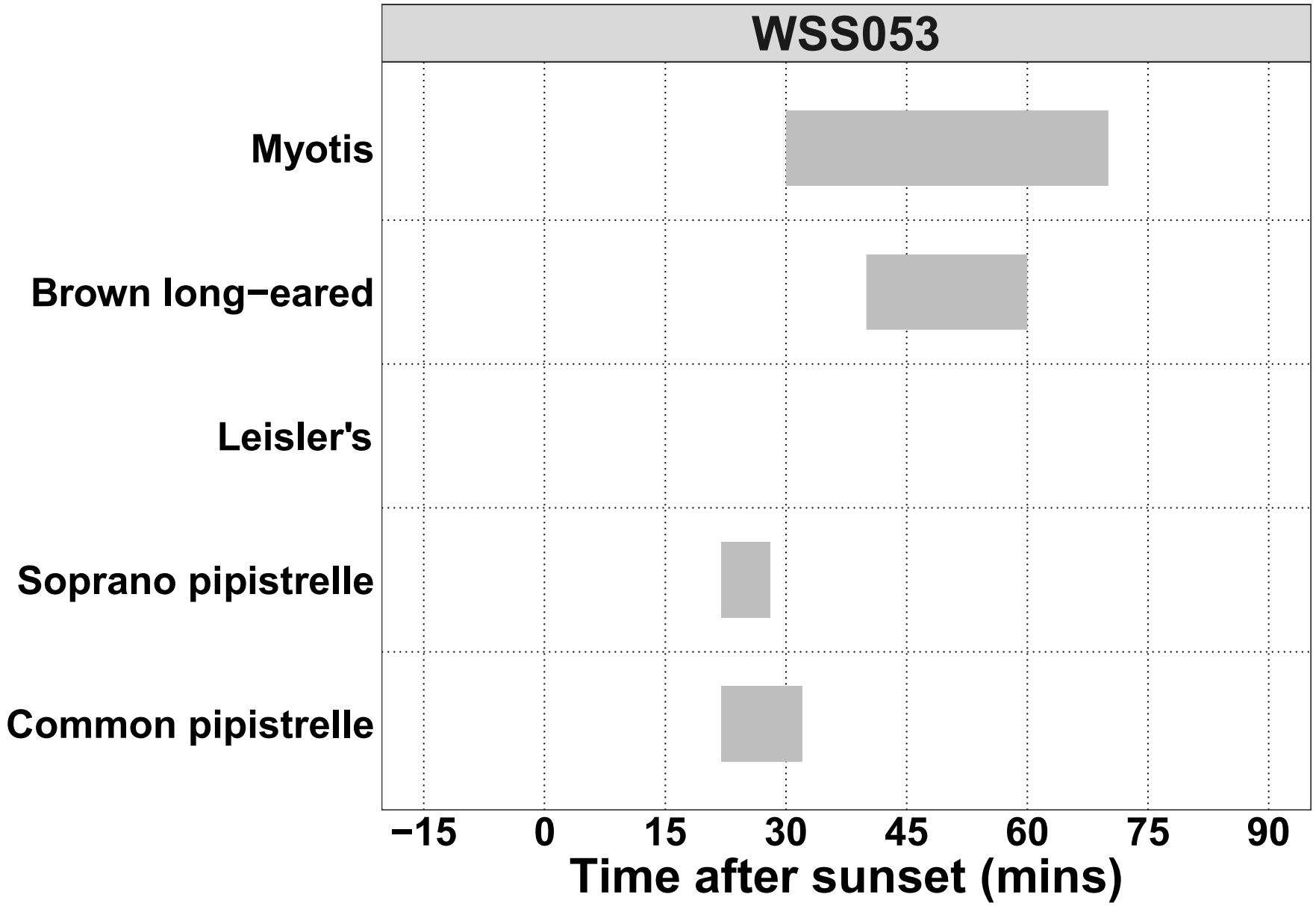

WSS034
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

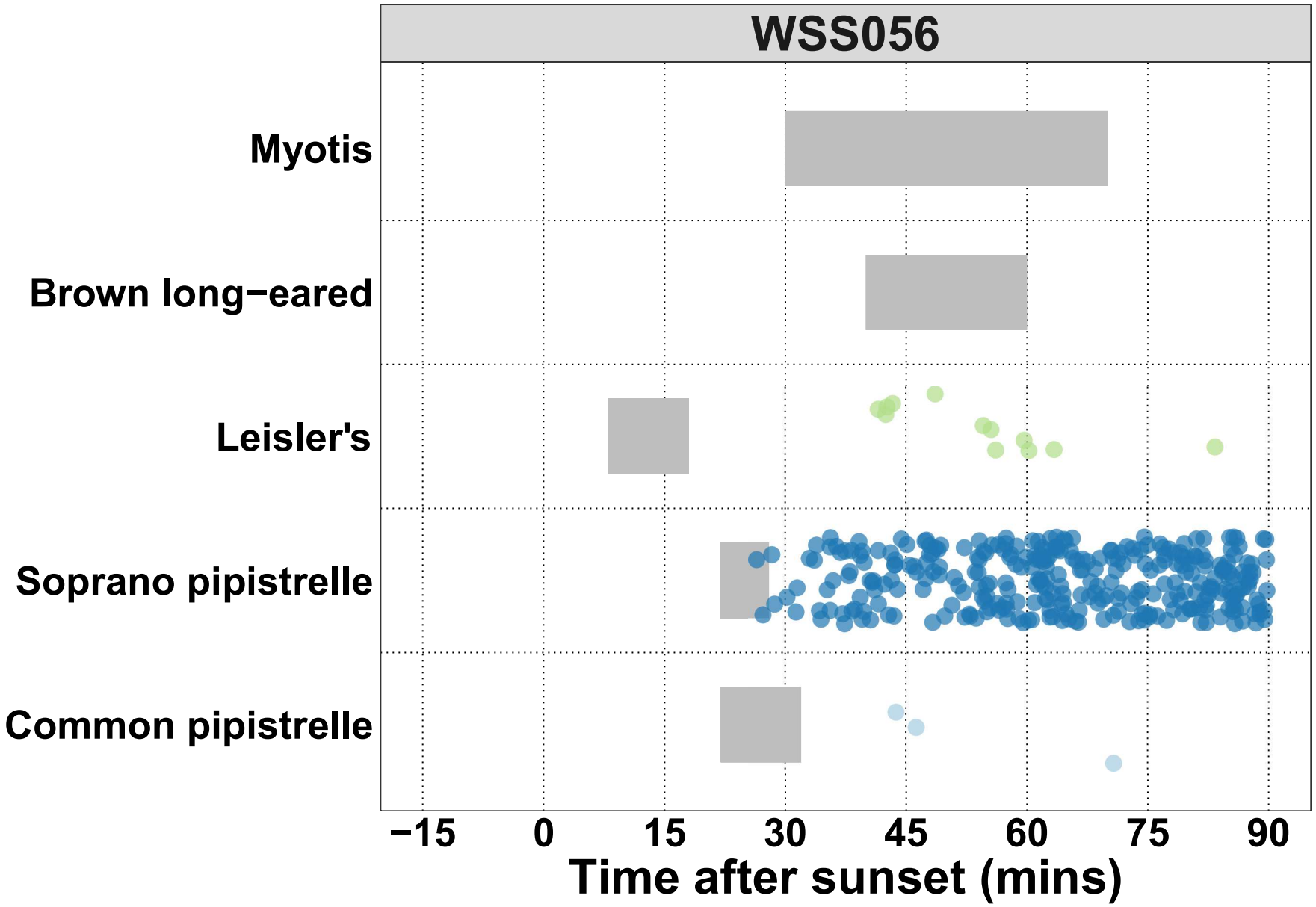

WSS035
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

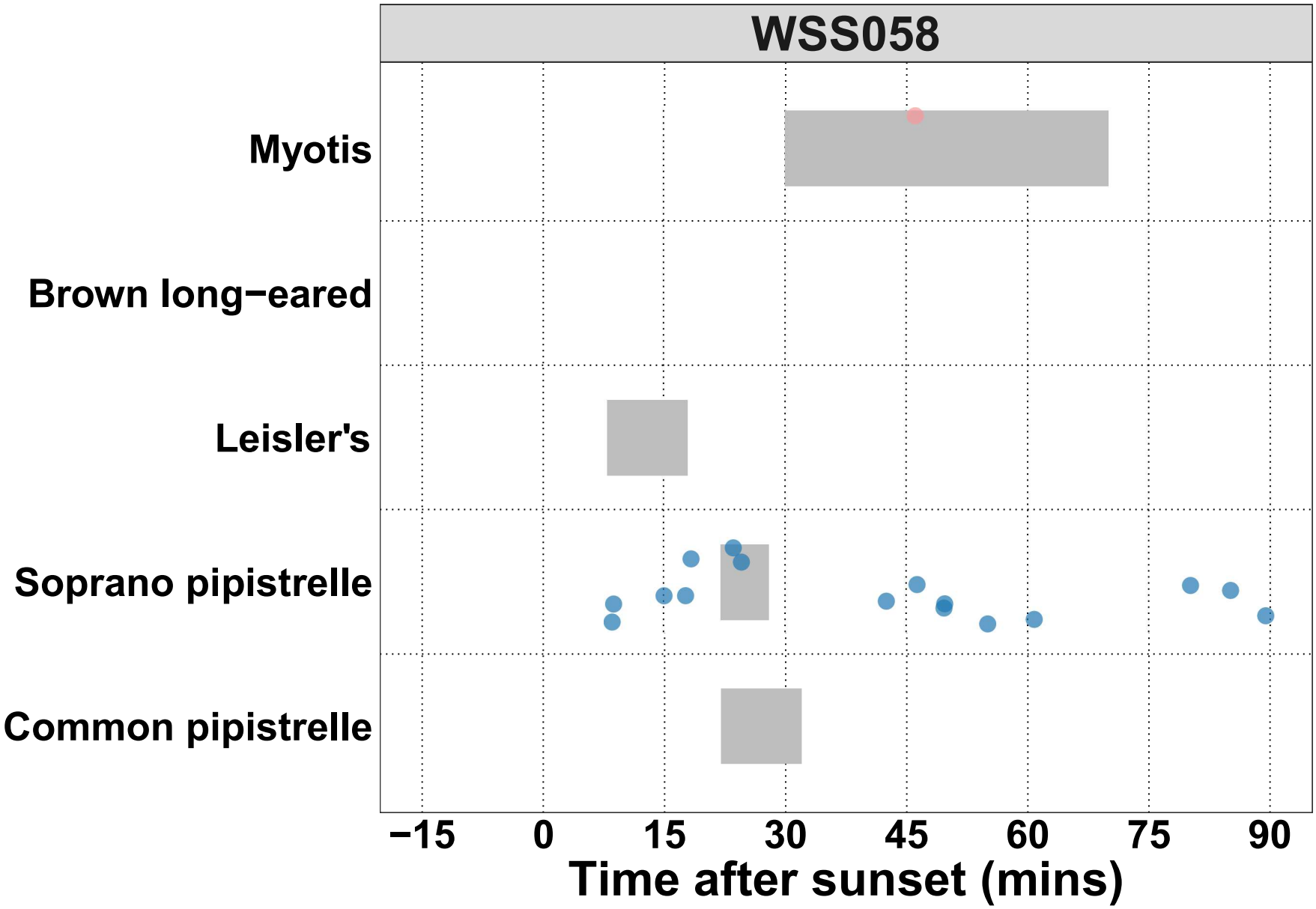

WSS036
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

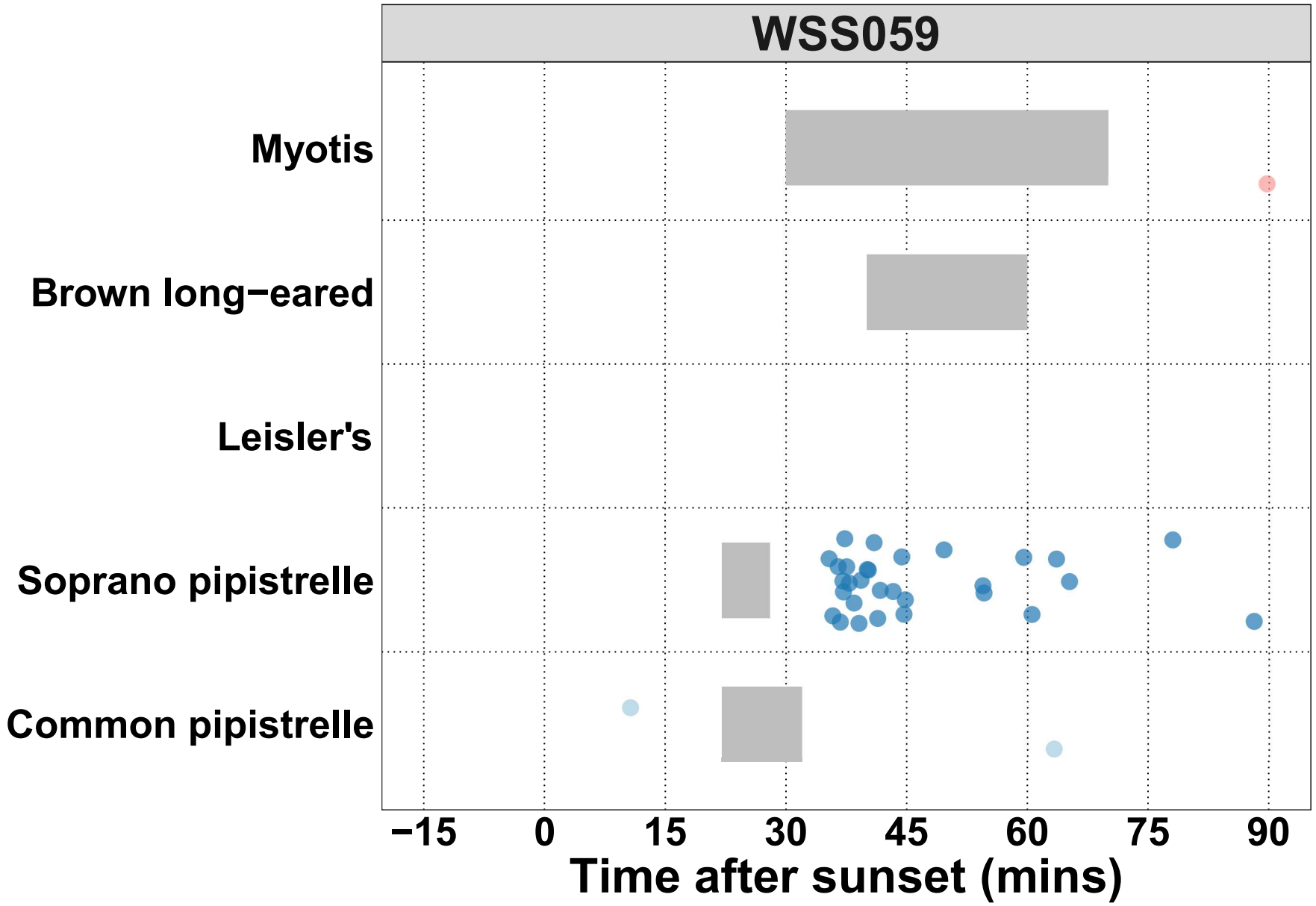

WSS037
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

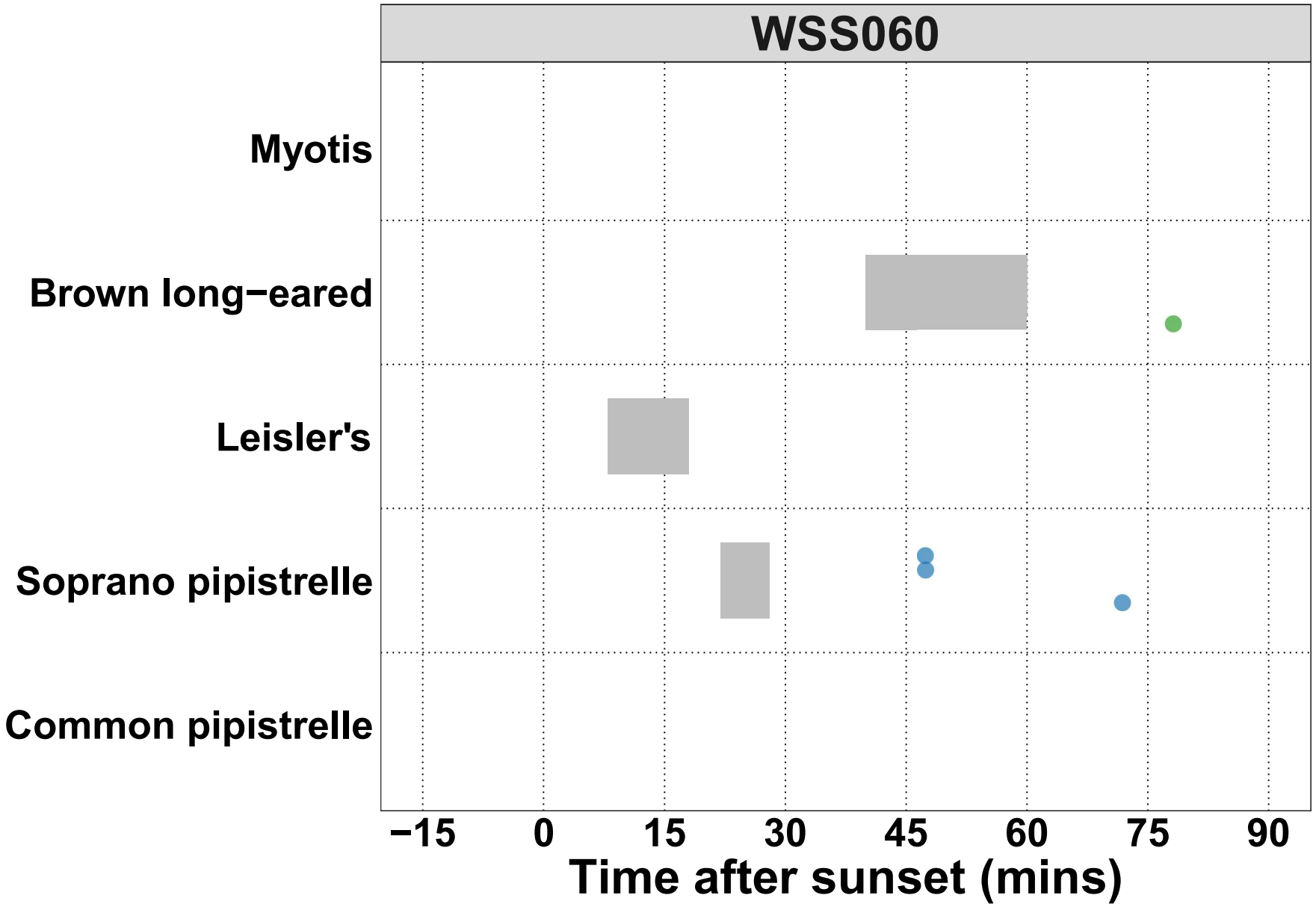

WSS038
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

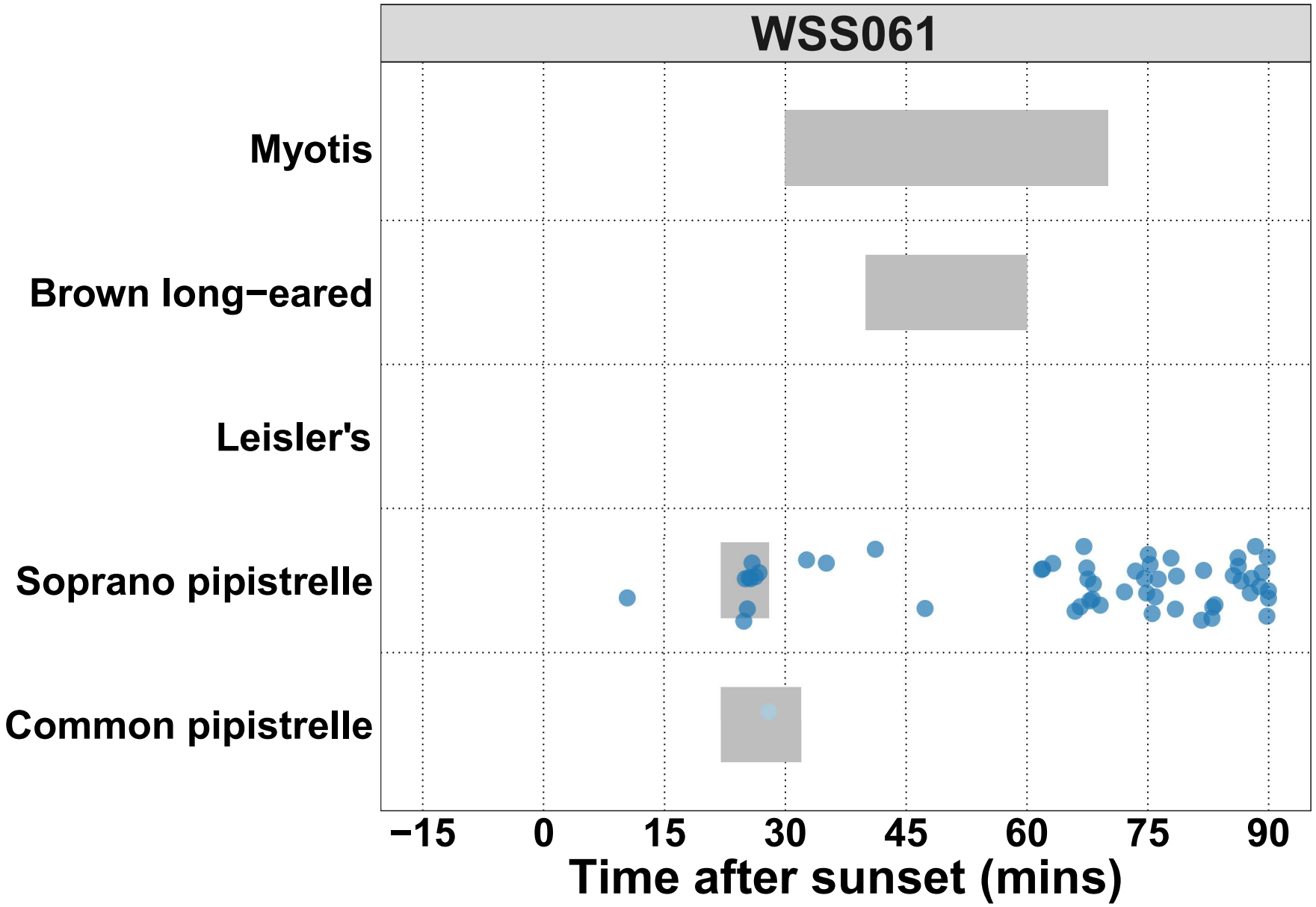

WSS053
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

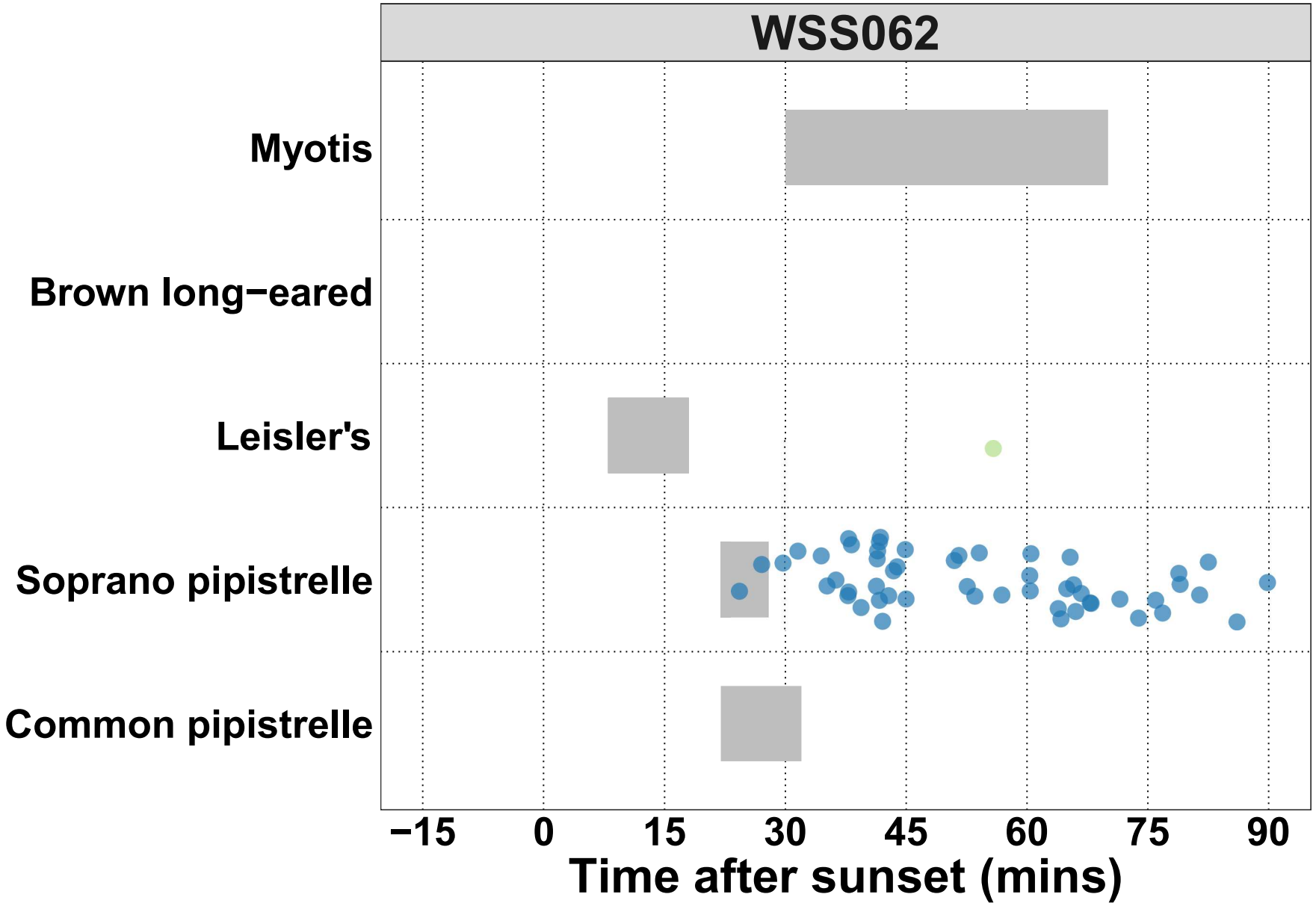

WSS056
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

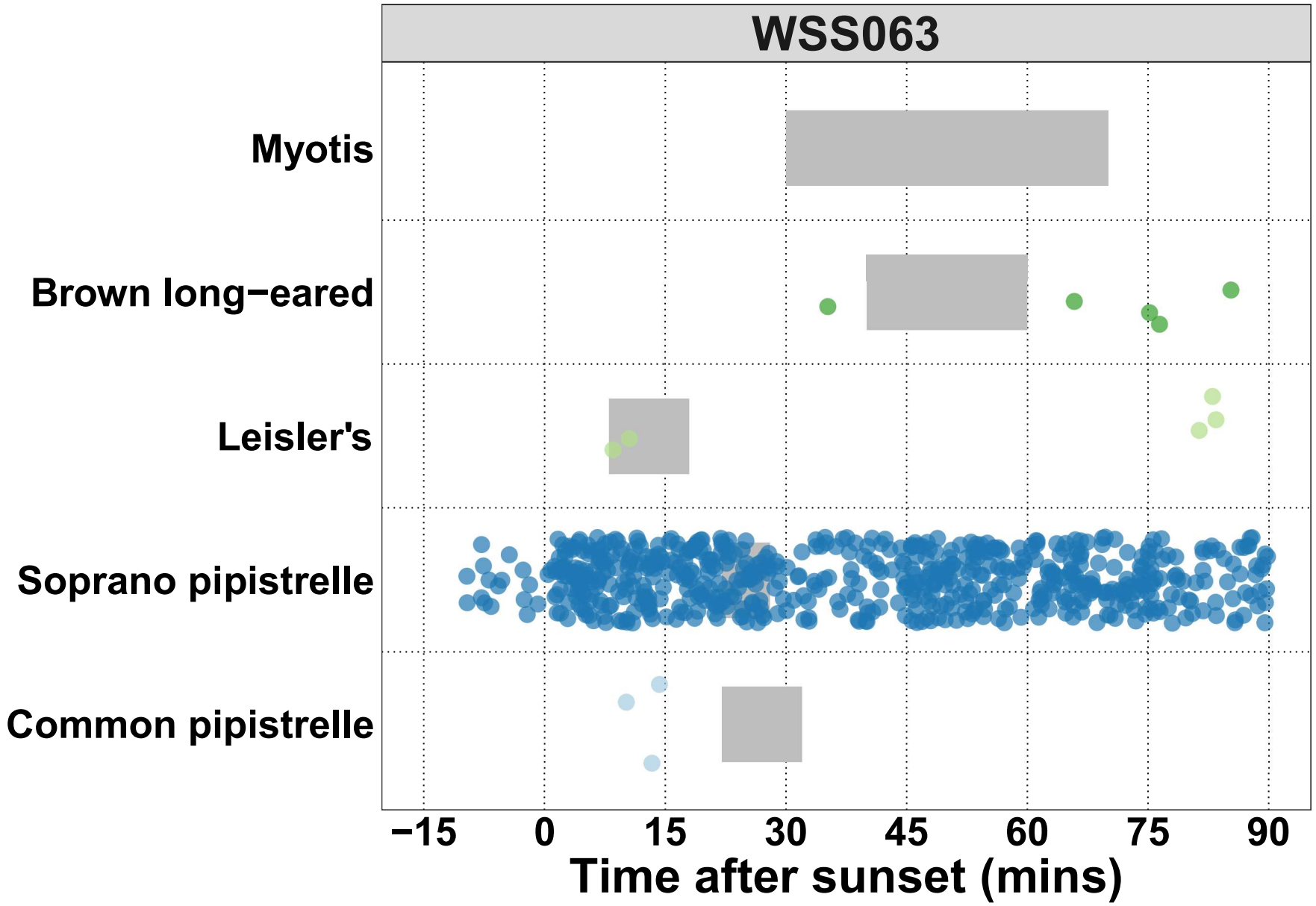

WSS058
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

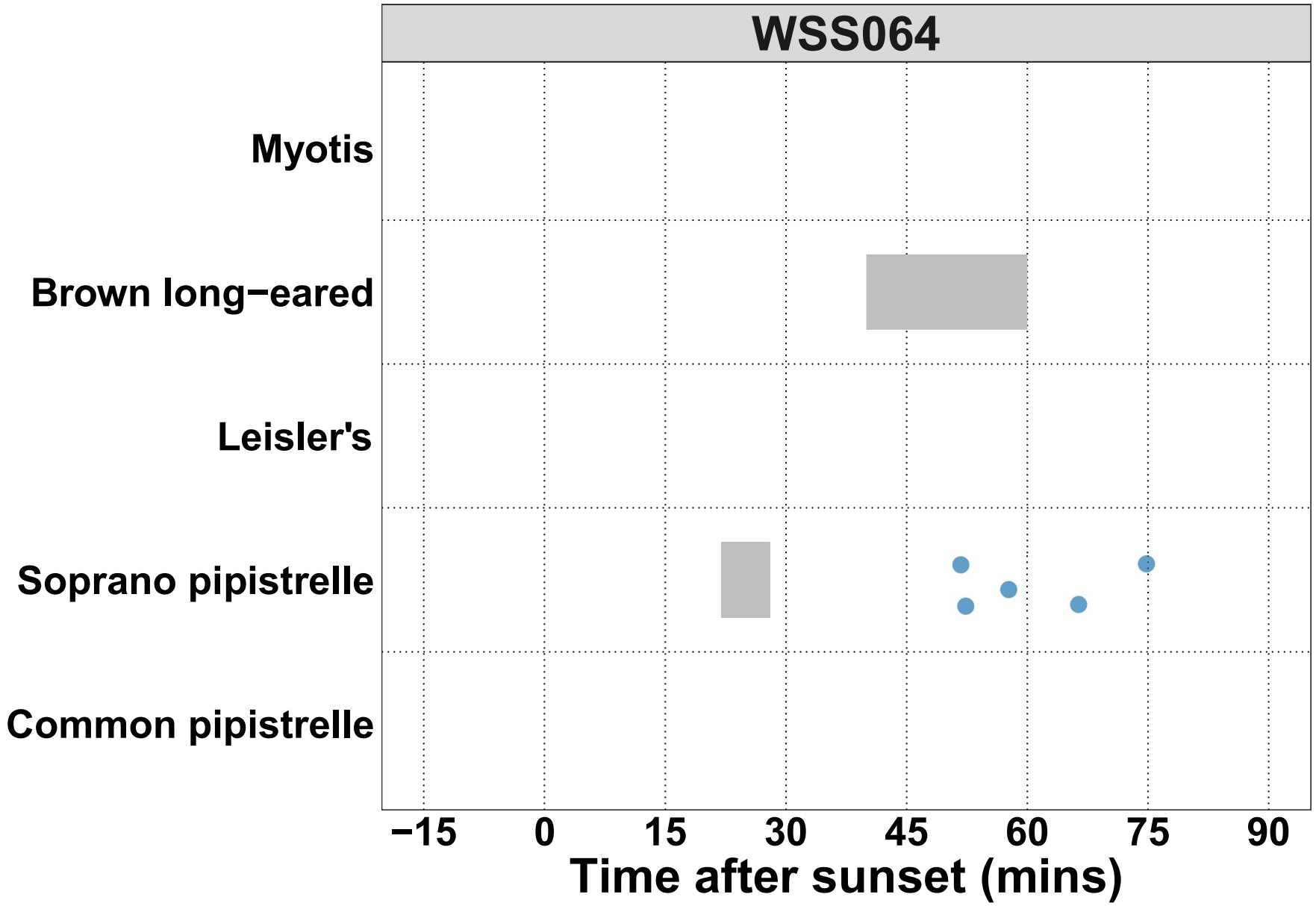

WSS059
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

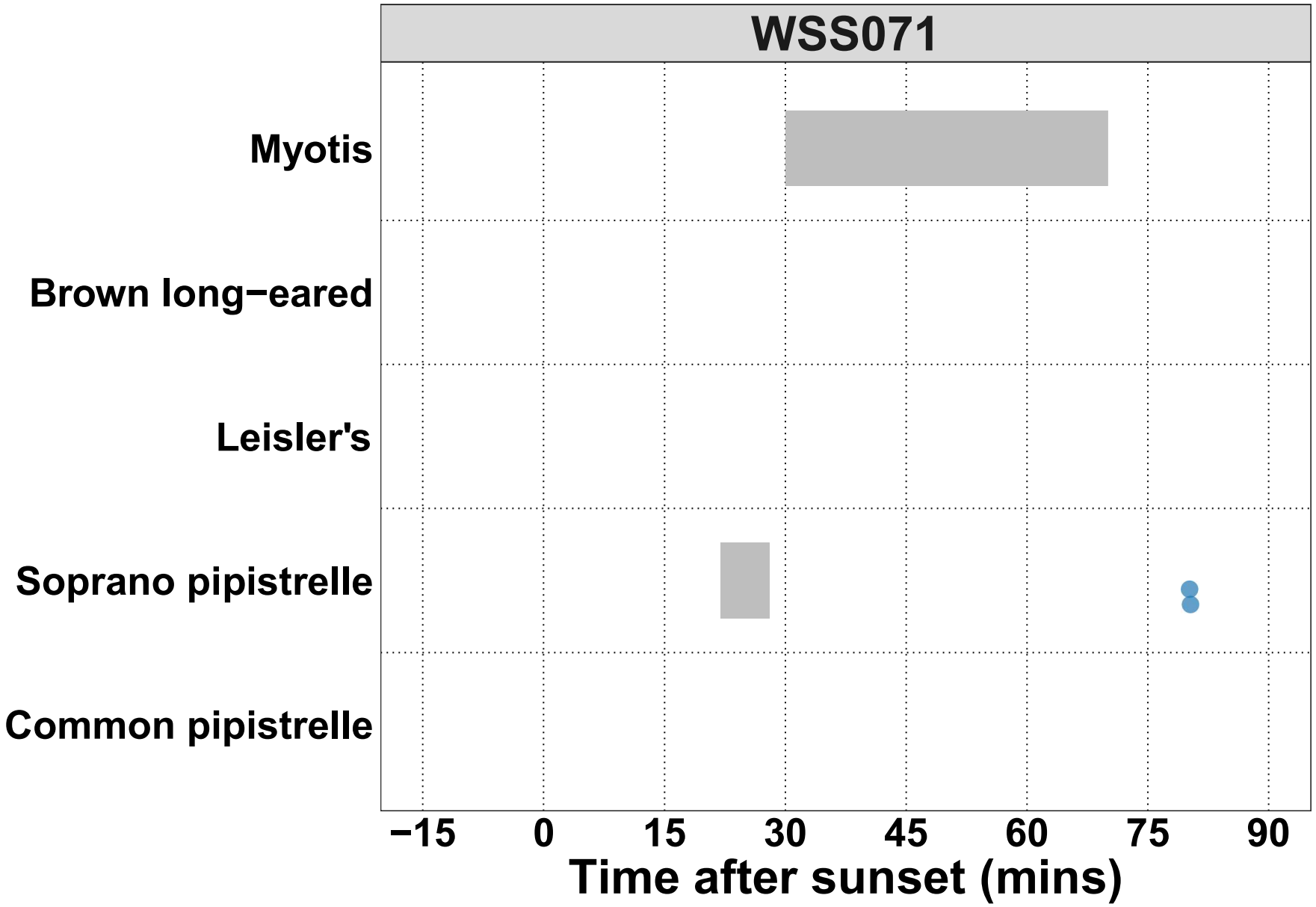

WSS060
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

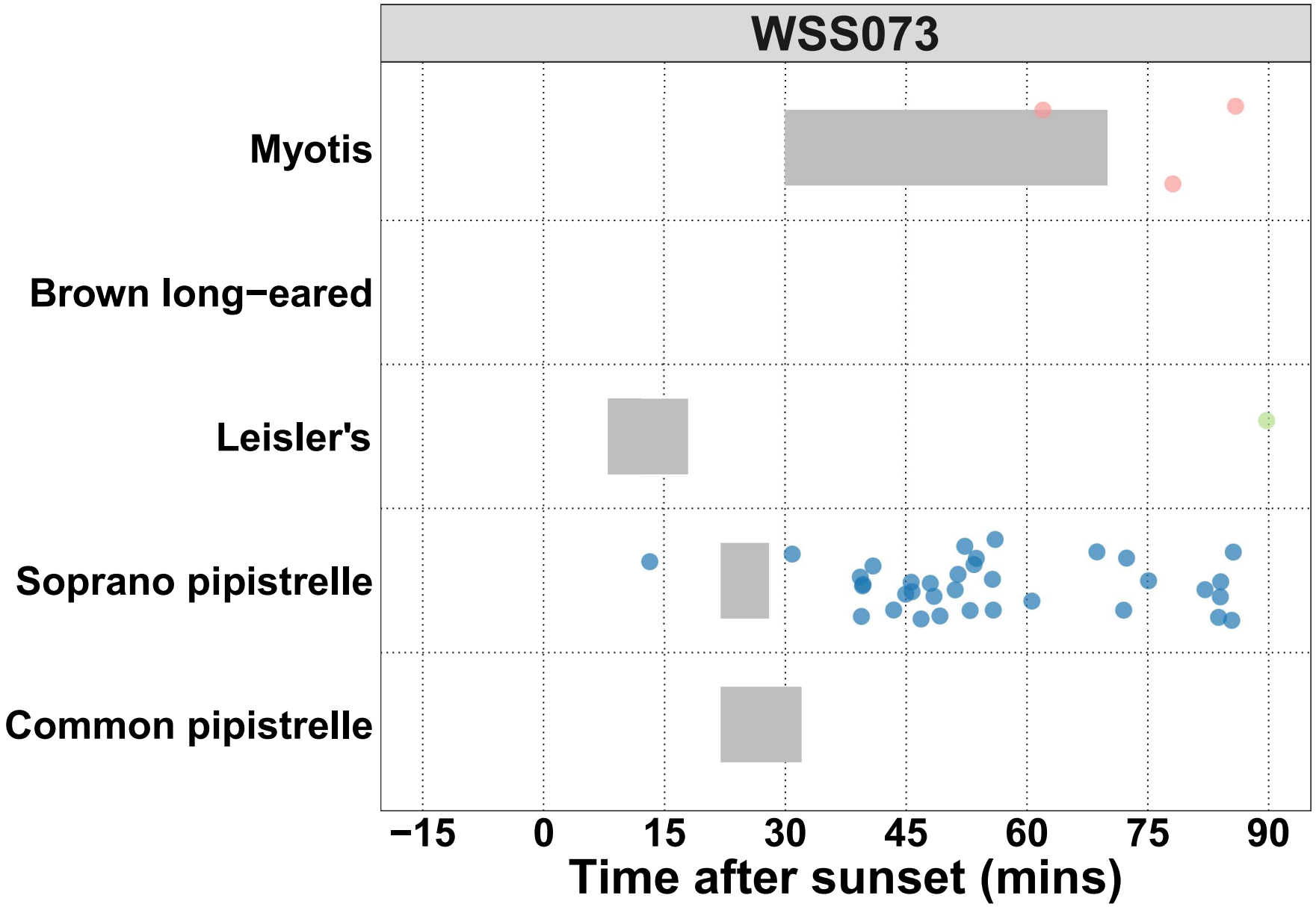

WSS061
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

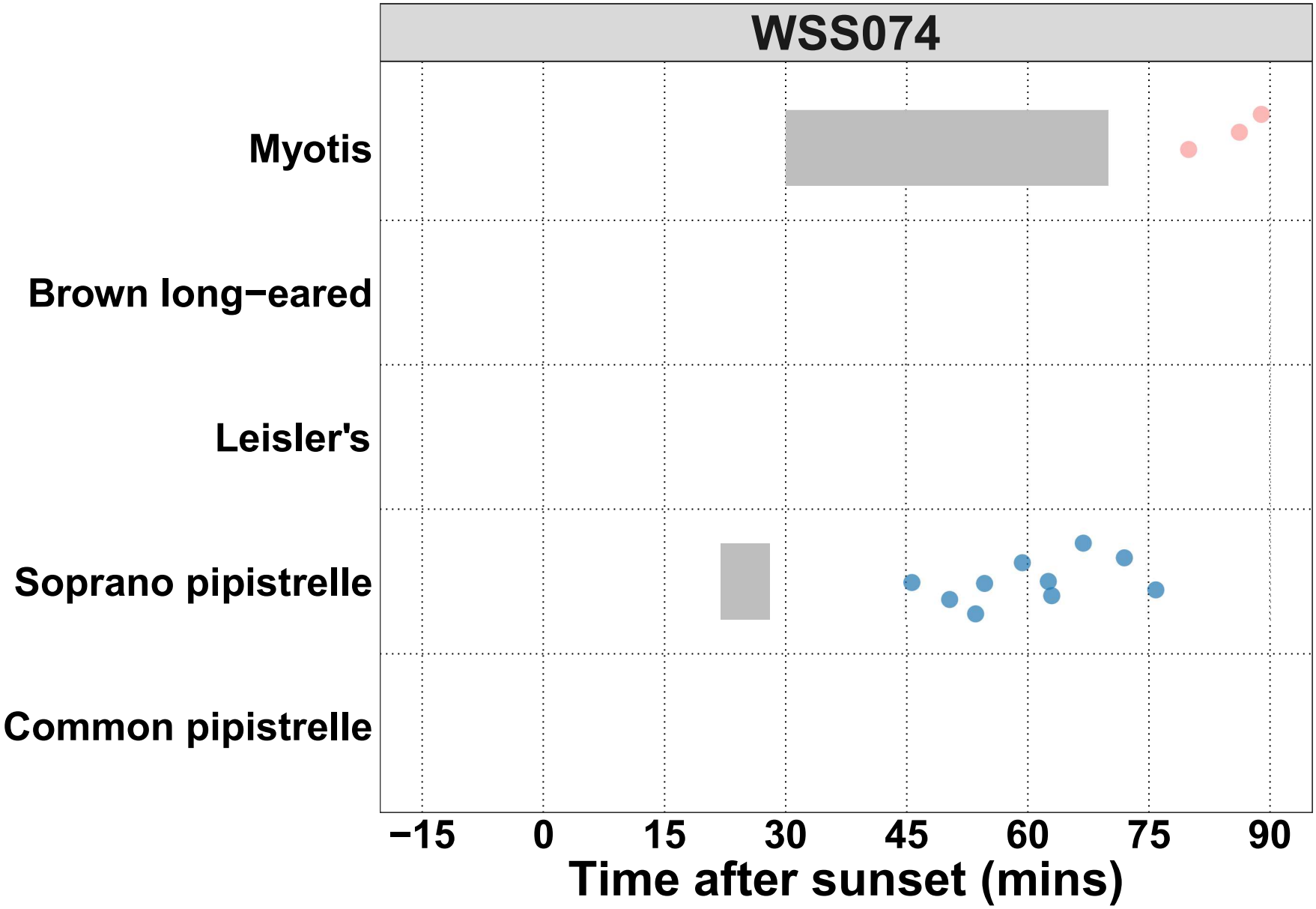

WSS062
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

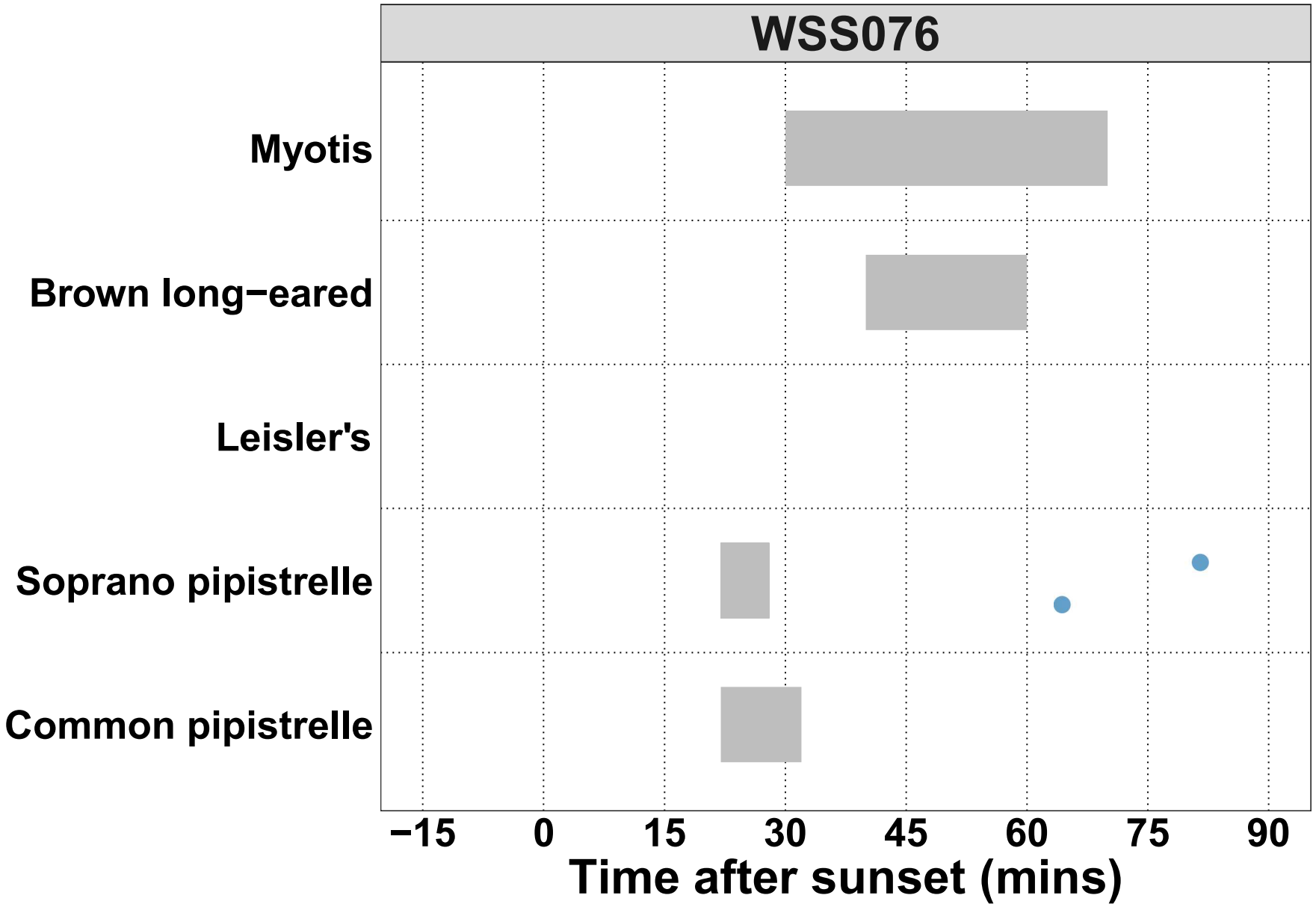

WSS063
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

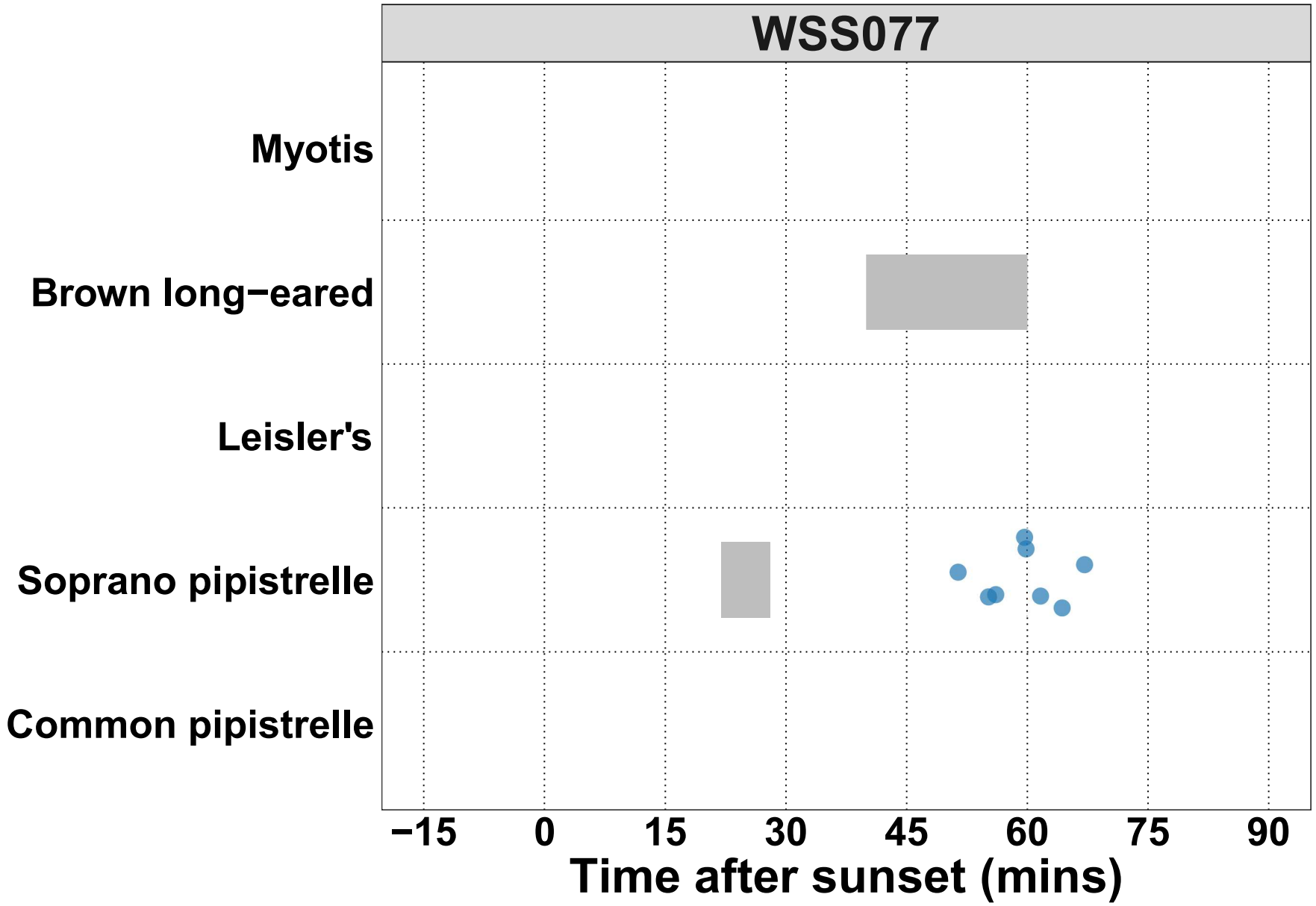

WSS064
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

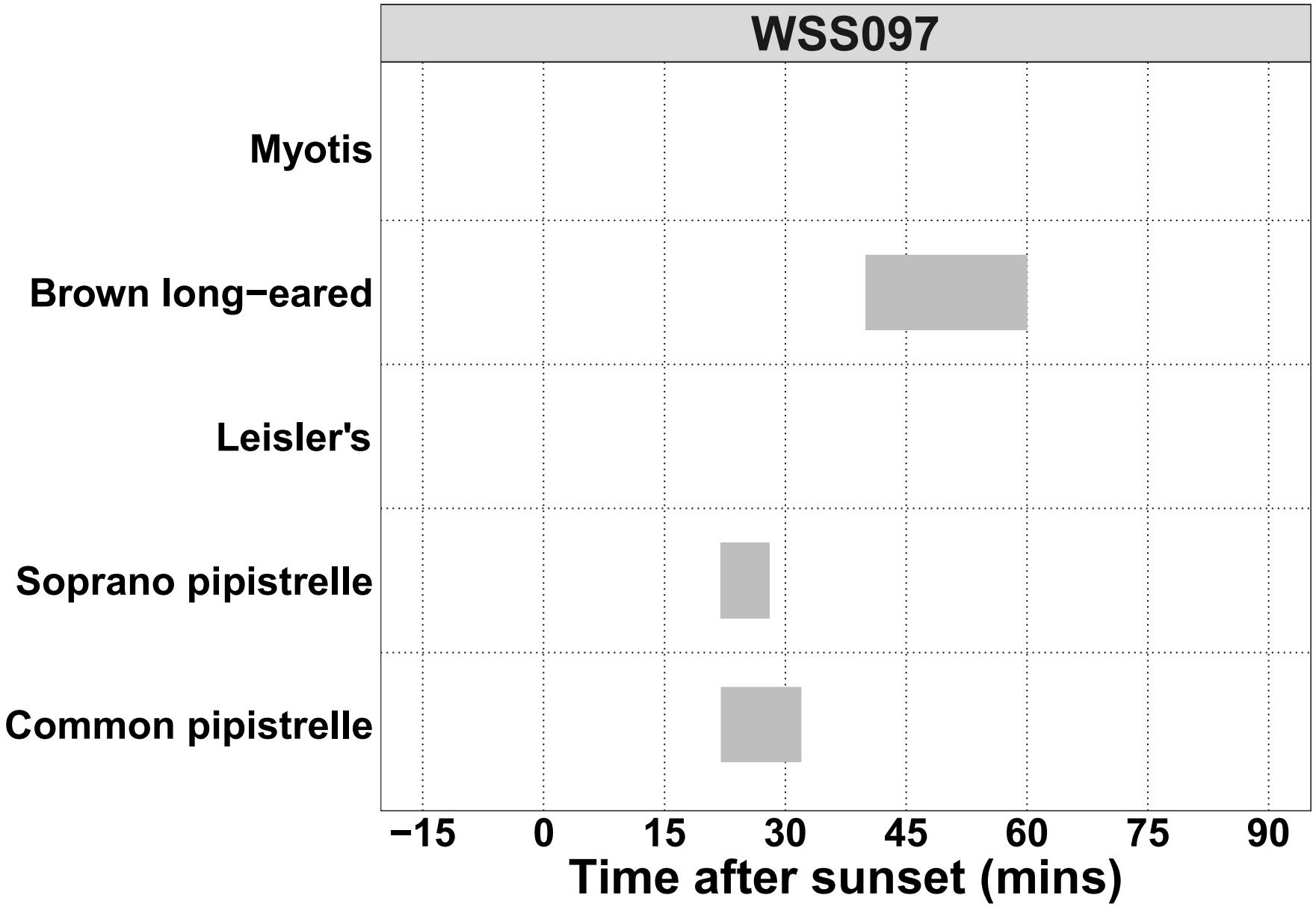

WSS071
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

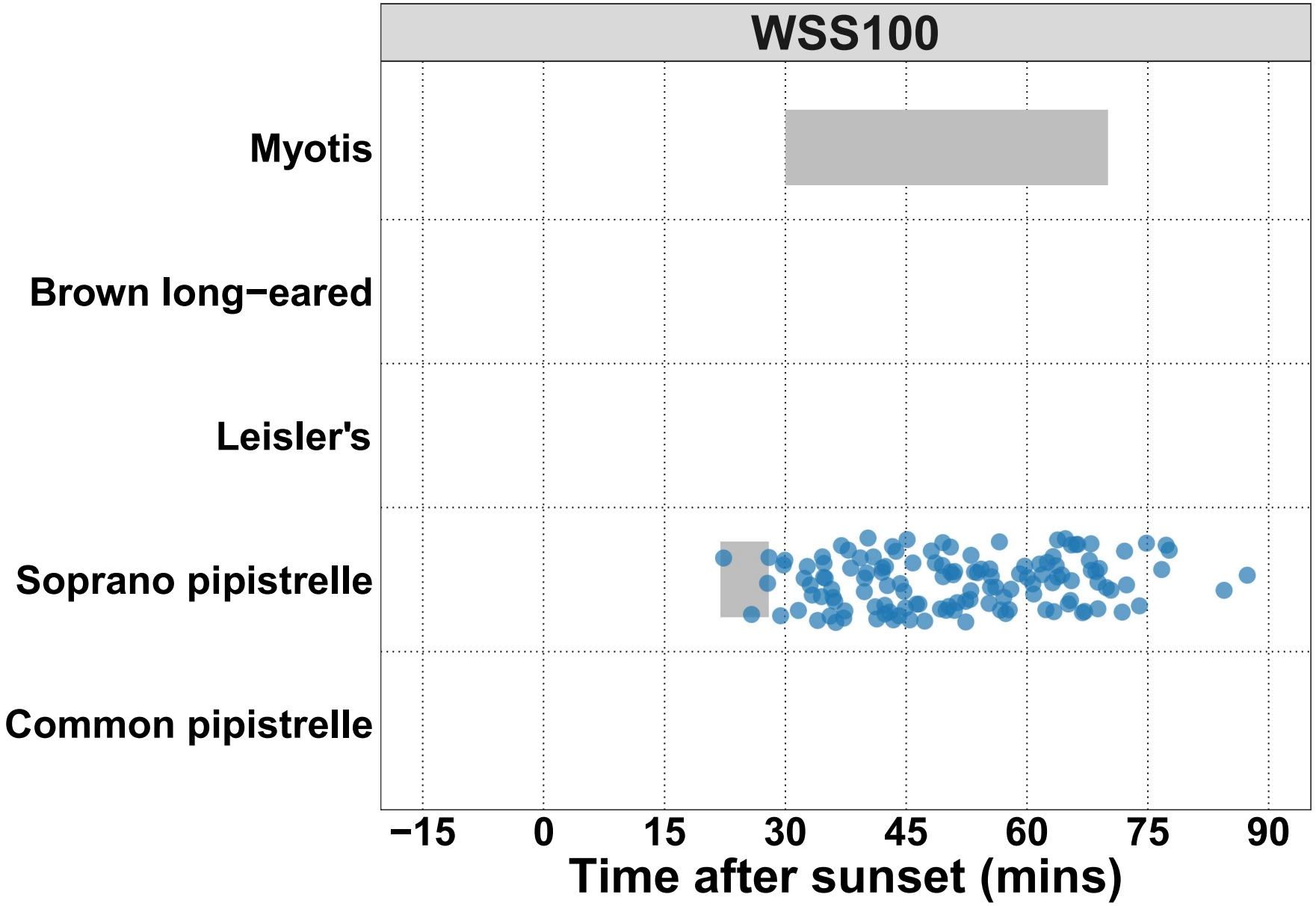

WSS073
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

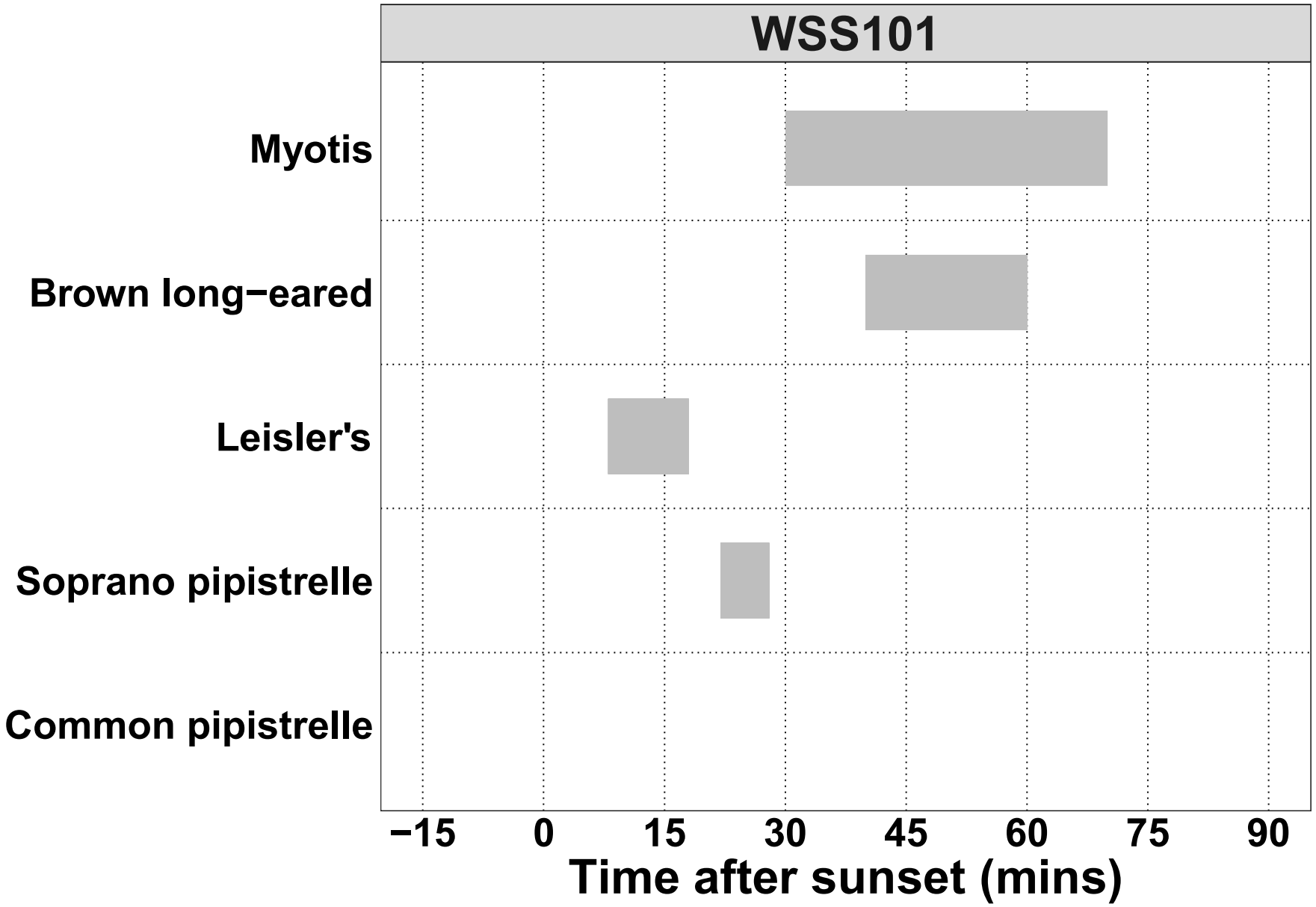

WSS074
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

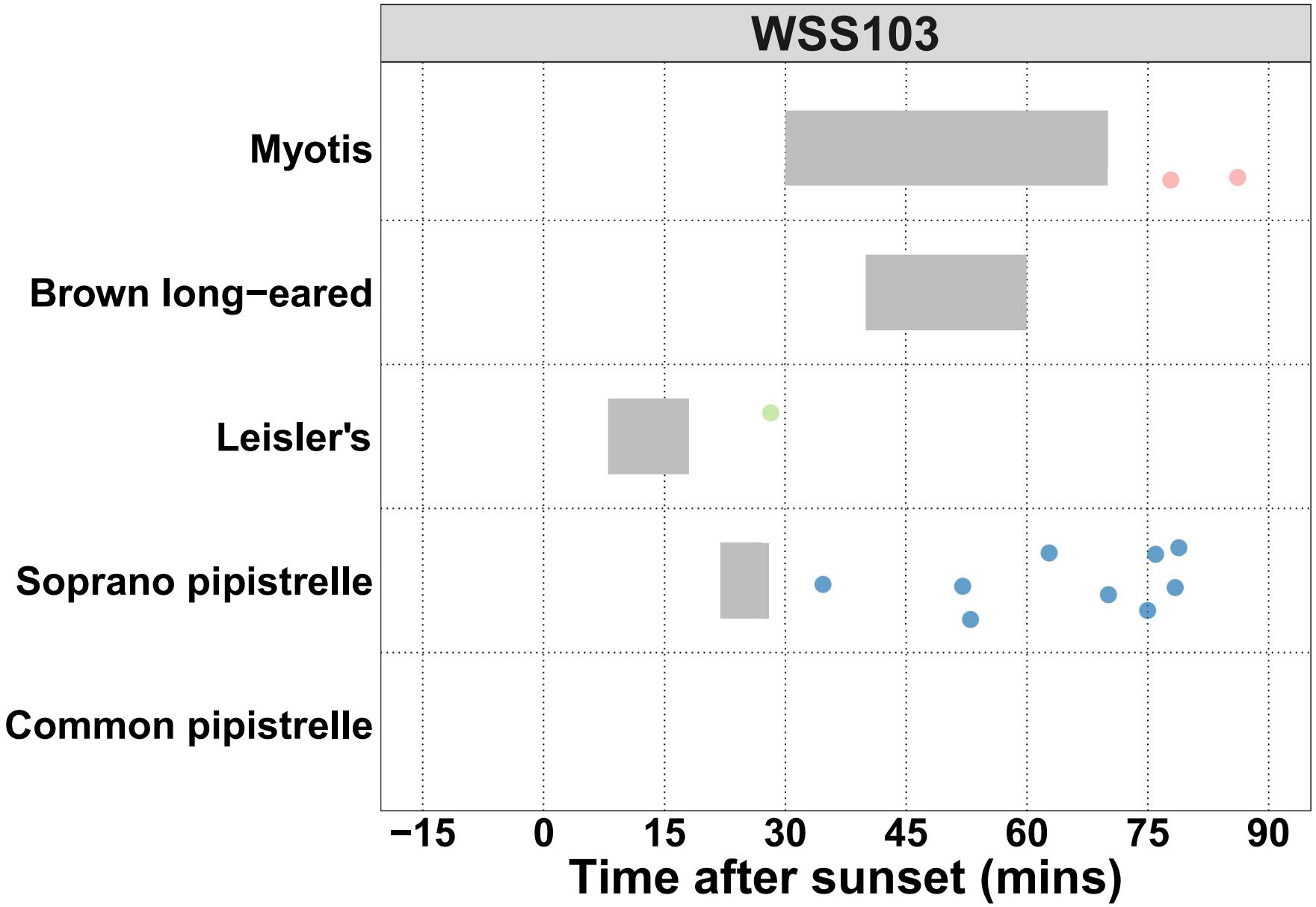

WSS076
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

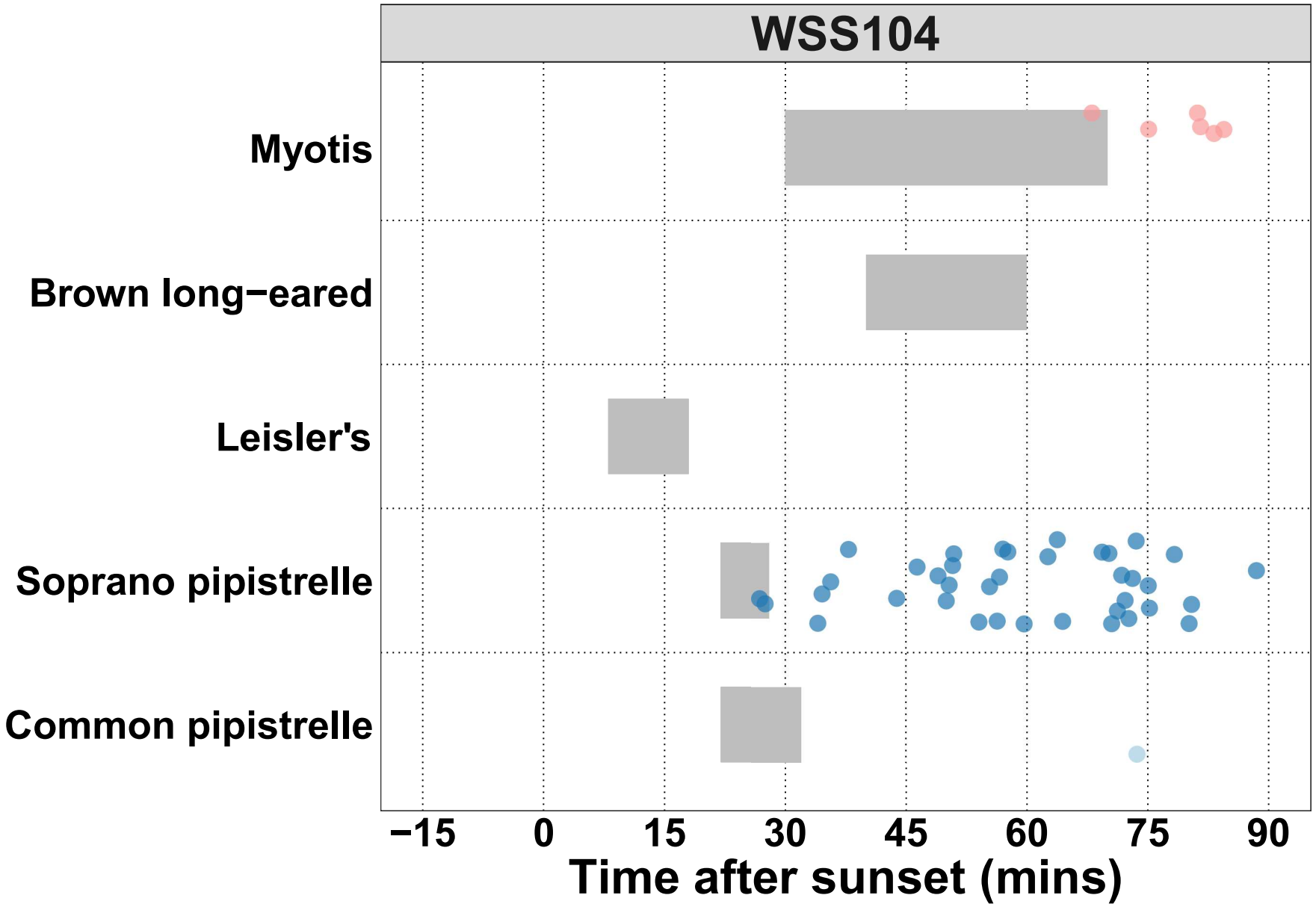

WSS077
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

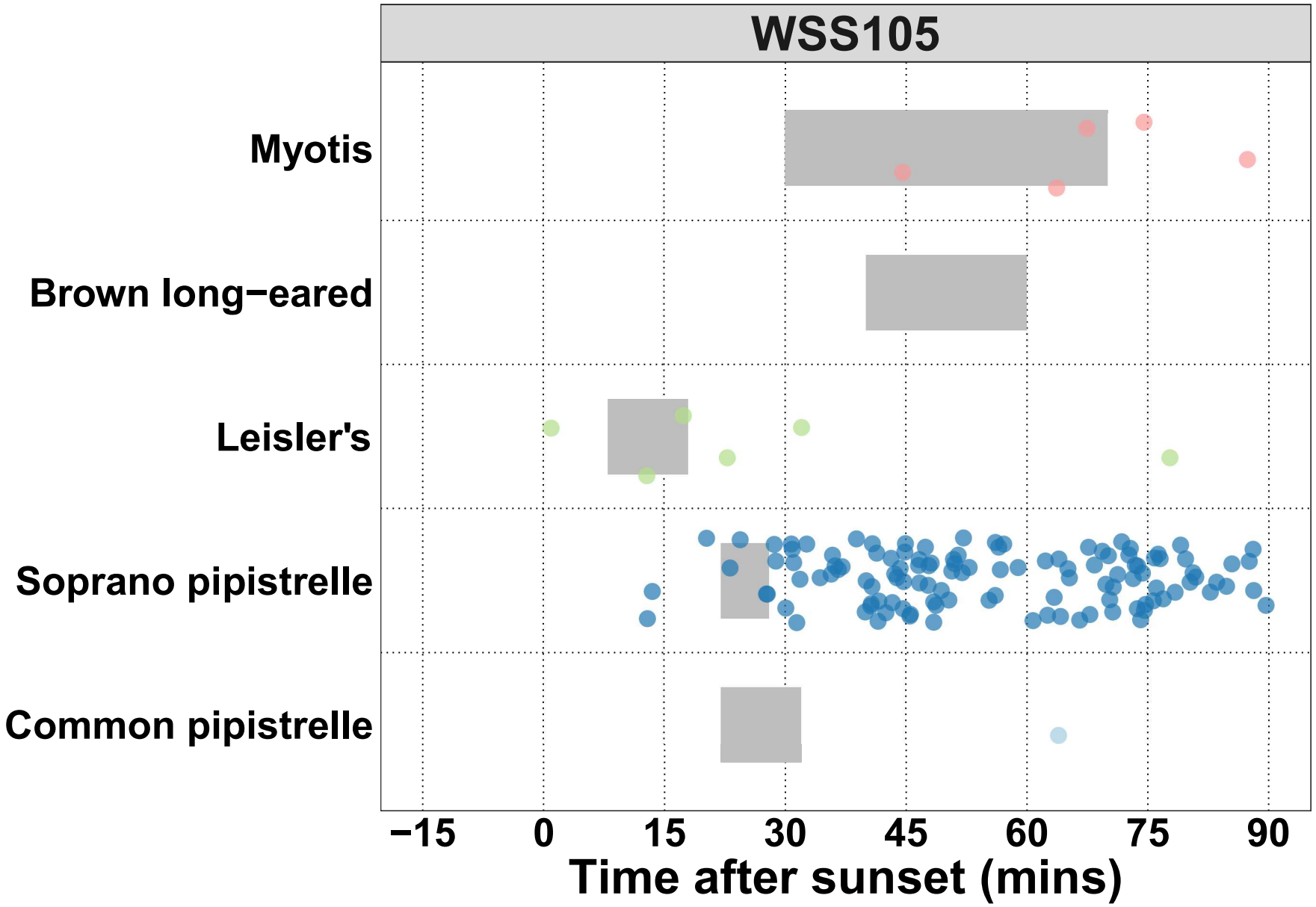

WSS097
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

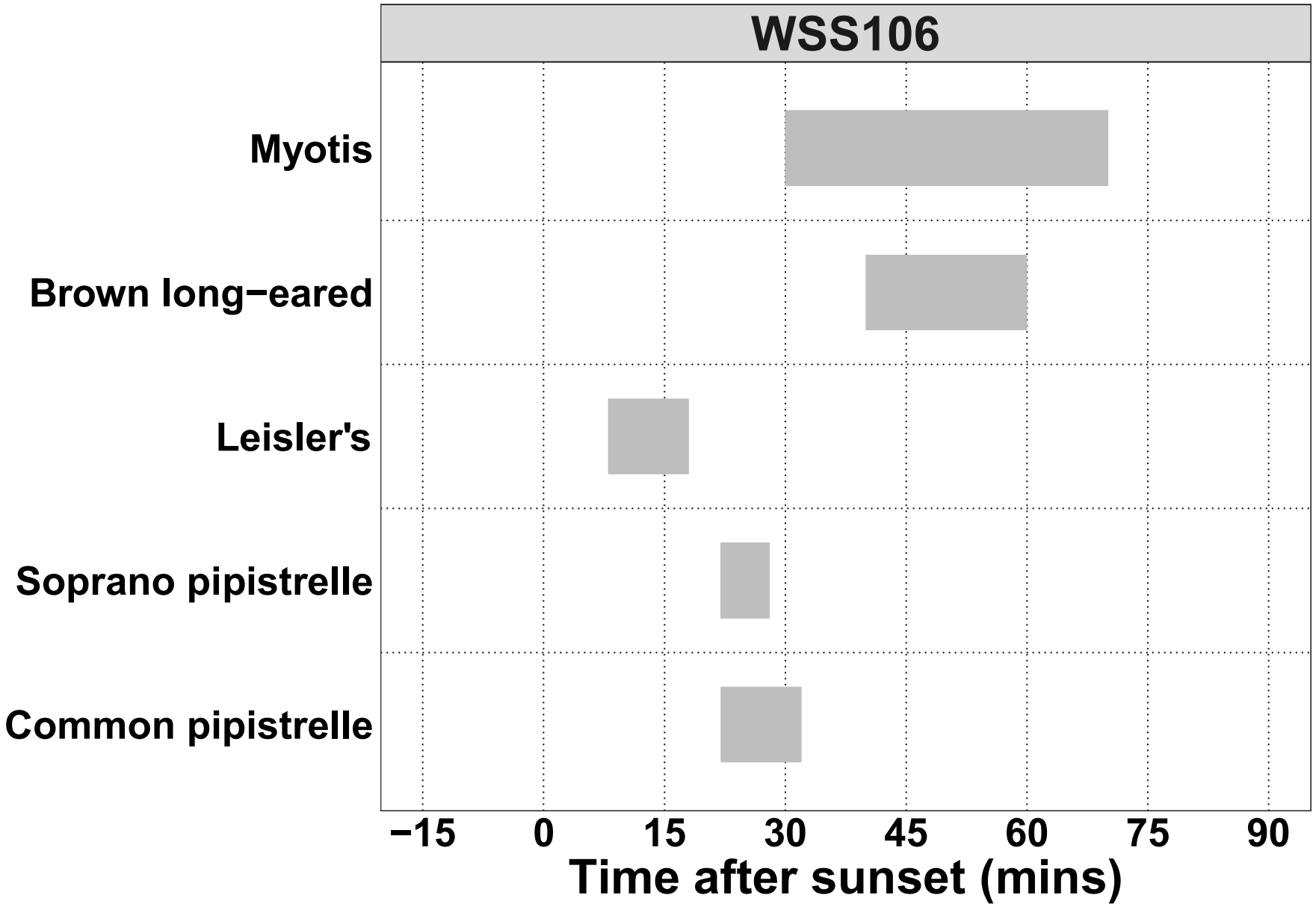

WSS100
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)


WSS101
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)


WSS103
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)


WSS104
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)


WSS105
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)


WSS106
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

Bat Passes Potentially Indicating Close Proximity to a Roost (Maternity Period Only) - *Maternity period defined as 15th June - 30th July.

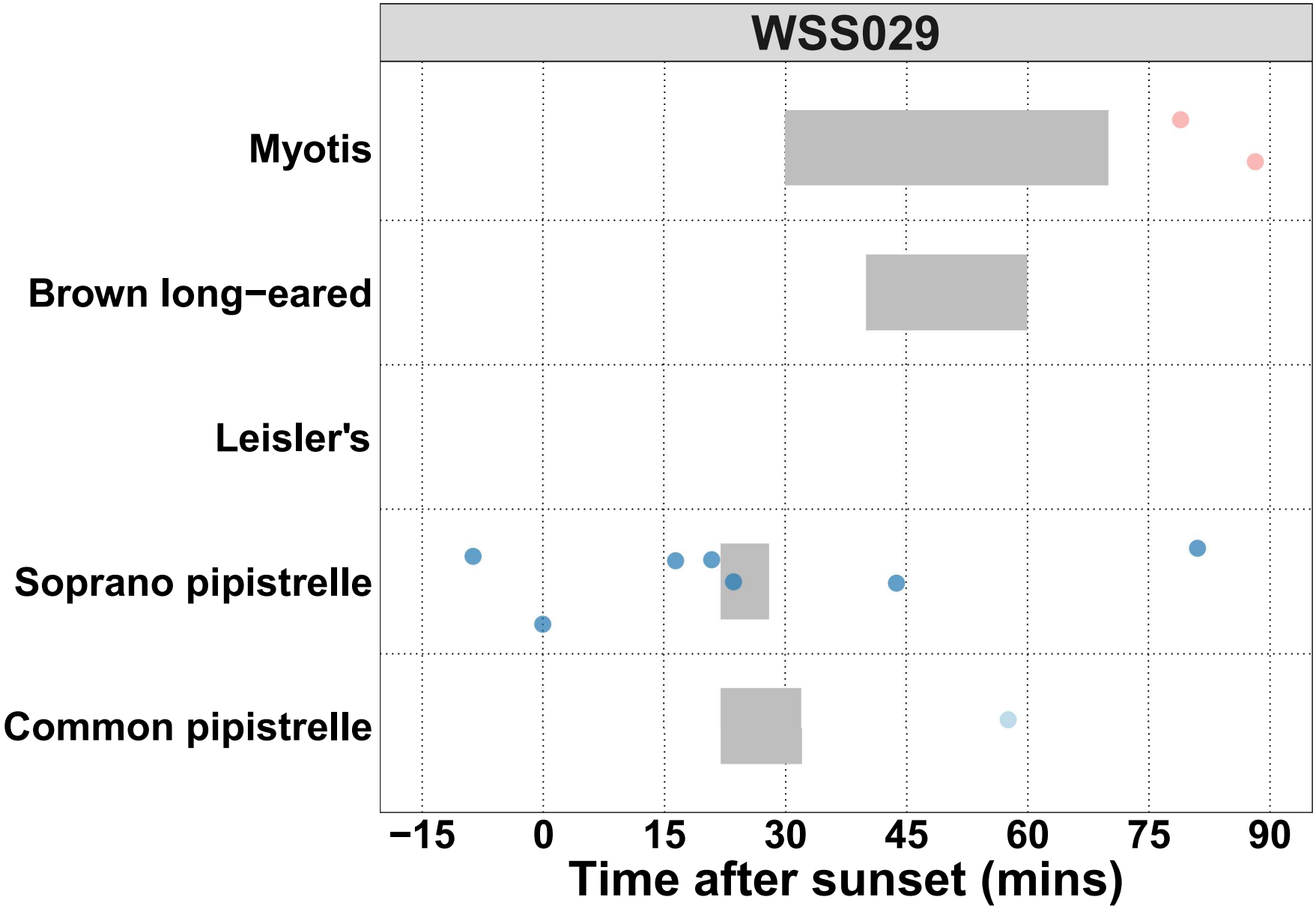
Table 18: Table continues below

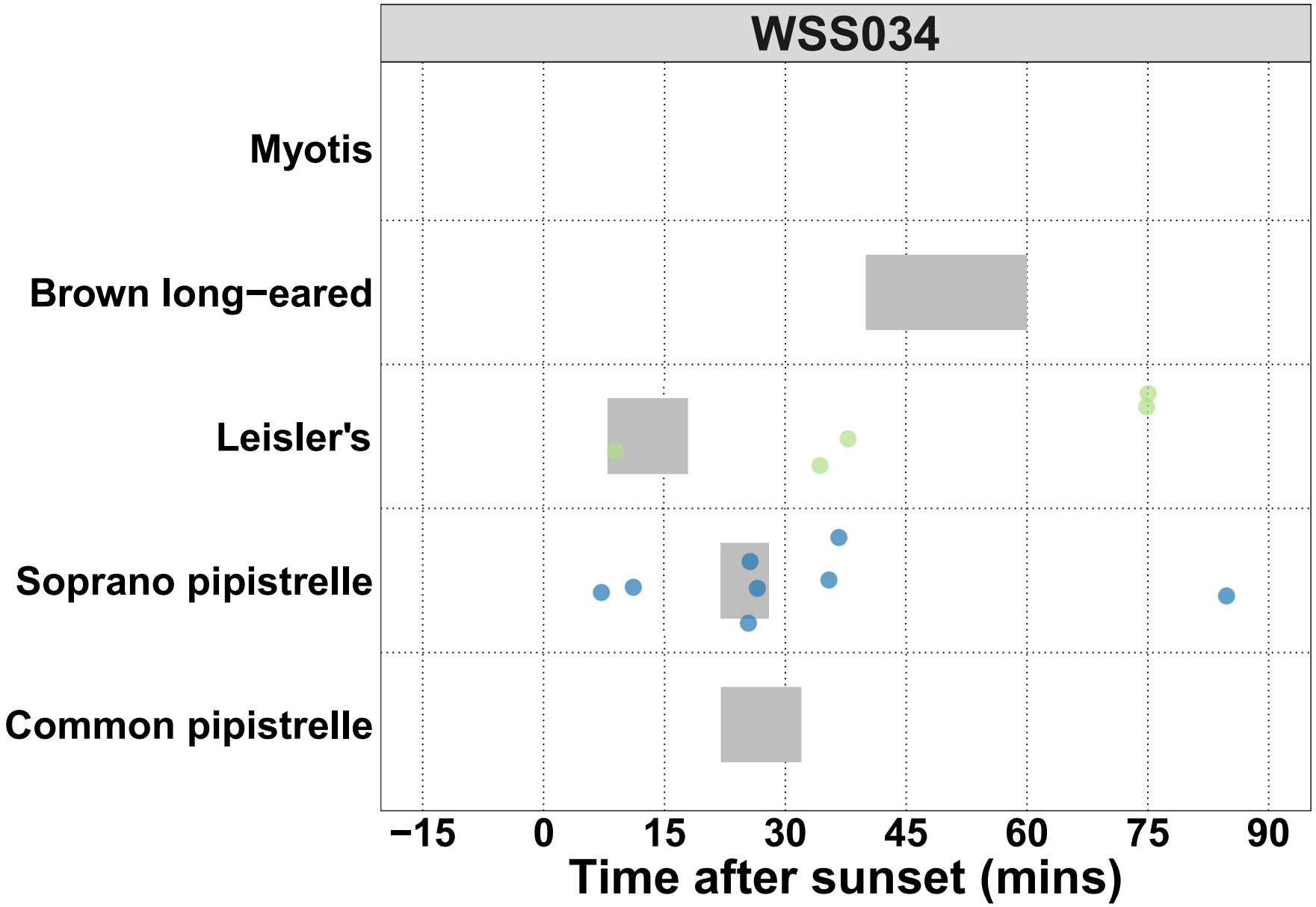
Species	Detector ID	2024-06-17	2024-06-18	2024-07-17	2024-07-18	2024-07-19
Common pipistrelle	WSS035	0	0	0	0	0
Common pipistrelle	WSS037	0	0	0	0	0
Common pipistrelle	WSS038	0	0	0	0	0
Soprano pipistrelle	WSS029	5	0	0	0	0
Soprano pipistrelle	WSS034	0	3	2	0	0
Soprano pipistrelle	WSS035	0	0	0	0	0
Soprano pipistrelle	WSS036	0	3	0	0	0
Soprano pipistrelle	WSS037	0	0	0	0	0
Soprano pipistrelle	WSS038	0	0	0	0	0
Soprano pipistrelle	WSS058	3	4	0	0	0
Soprano pipistrelle	WSS062	0	0	0	1	1
Soprano pipistrelle	WSS104	0	0	0	0	0
Leisler's	WSS034	0	0	1	0	0
Leisler's	WSS035	0	0	0	0	0
Leisler's	WSS038	0	0	0	0	0
Brown long-eared	WSS037	0	0	0	0	0
Brown long-eared	WSS038	0	0	0	0	0
Myotis	WSS035	0	0	0	0	0
Myotis	WSS037	0	0	0	0	0
Myotis	WSS058	0	1	0	0	0
Myotis	WSS104	0	0	0	0	0
Myotis	WSS105	0	0	0	0	0

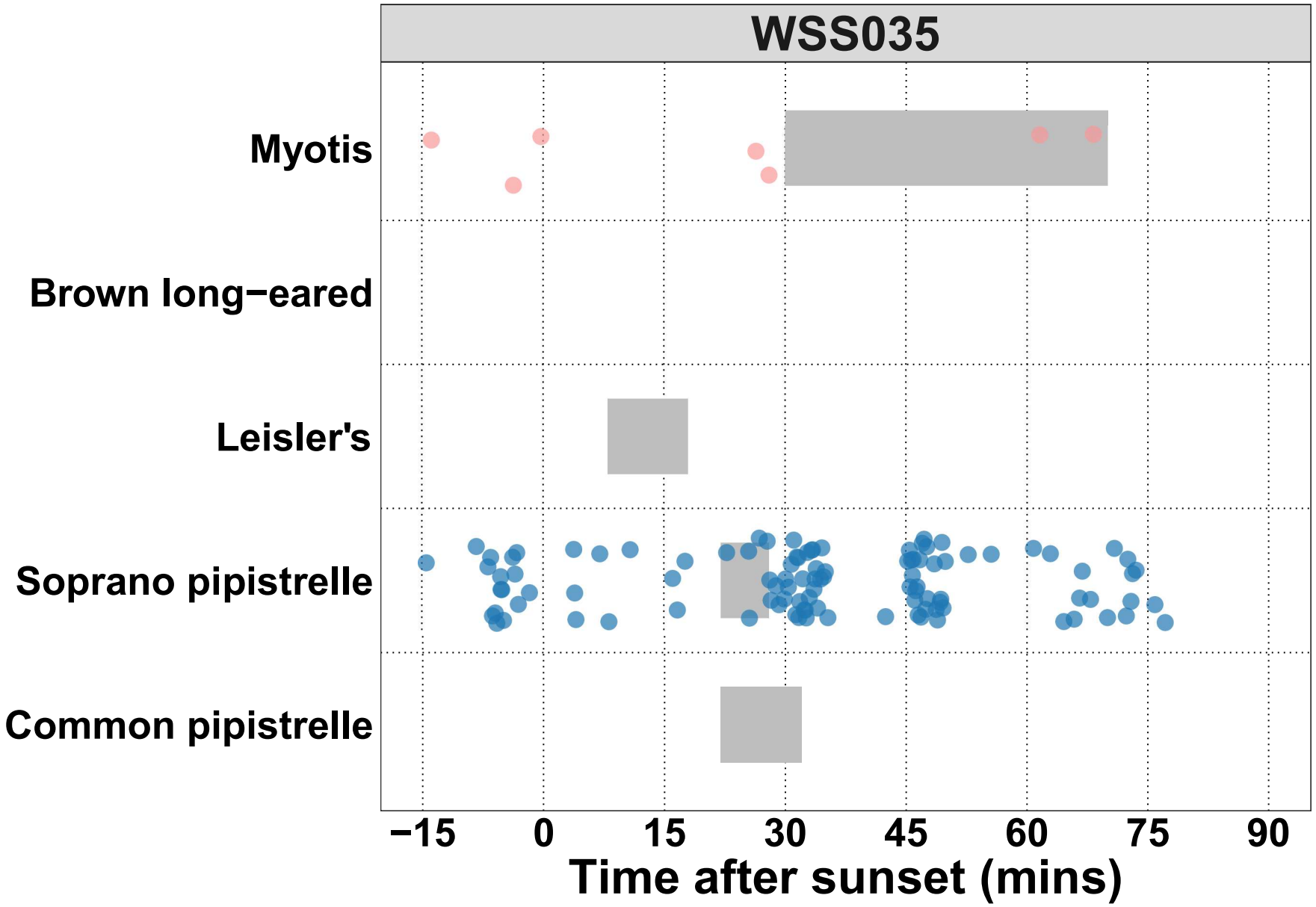
2024-07-24	2024-07-25	2024-07-26	2024-07-27	2024-07-28	2024-07-29	2024-07-30
0	0	0	0	54	12	0
0	0	0	3	0	0	0
0	0	0	2	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	0	14	232	59

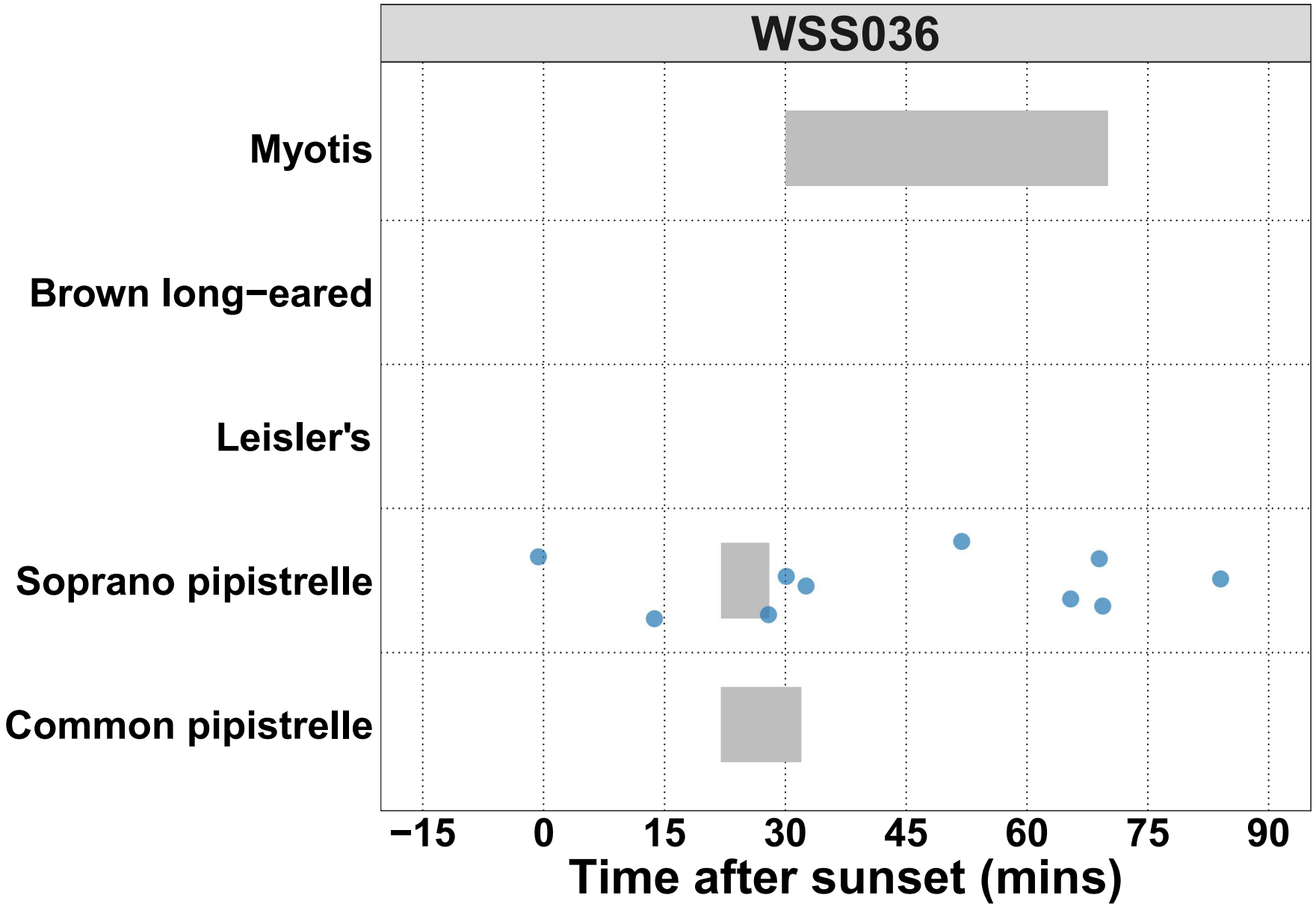
2024-07-24	2024-07-25	2024-07-26	2024-07-27	2024-07-28	2024-07-29	2024-07-30
0	0	0	0	0	0	0
0	0	18	4	0	0	0
0	0	0	13	0	0	0
0	0	0	0	0	0	0
0	0	0	0	0	0	0
2	0	0	0	0	0	0
0	0	0	0	0	0	0
0	0	0	3	4	0	0
0	0	0	4	0	0	0
0	0	2	0	0	0	0
0	0	0	2	0	0	0
0	0	0	13	0	0	0
0	0	1	0	0	0	0
0	0	0	0	0	0	0
1	0	0	0	0	0	0
0	1	0	0	0	0	0

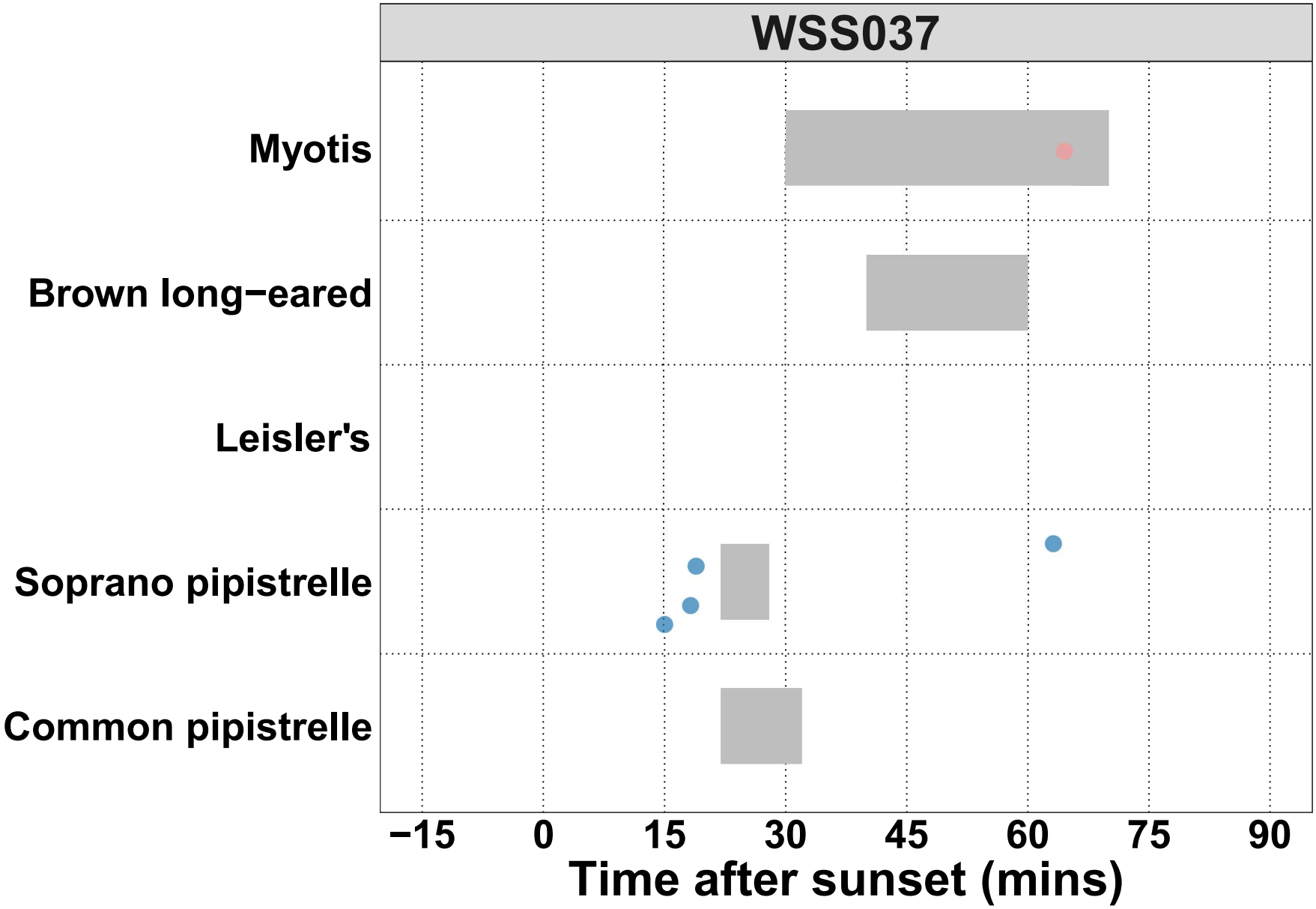
Bat Passes Potentially Indicating Close Proximity to a Roost (Maternity Period Only) - Maternity period defined as 15th June - 30th July.

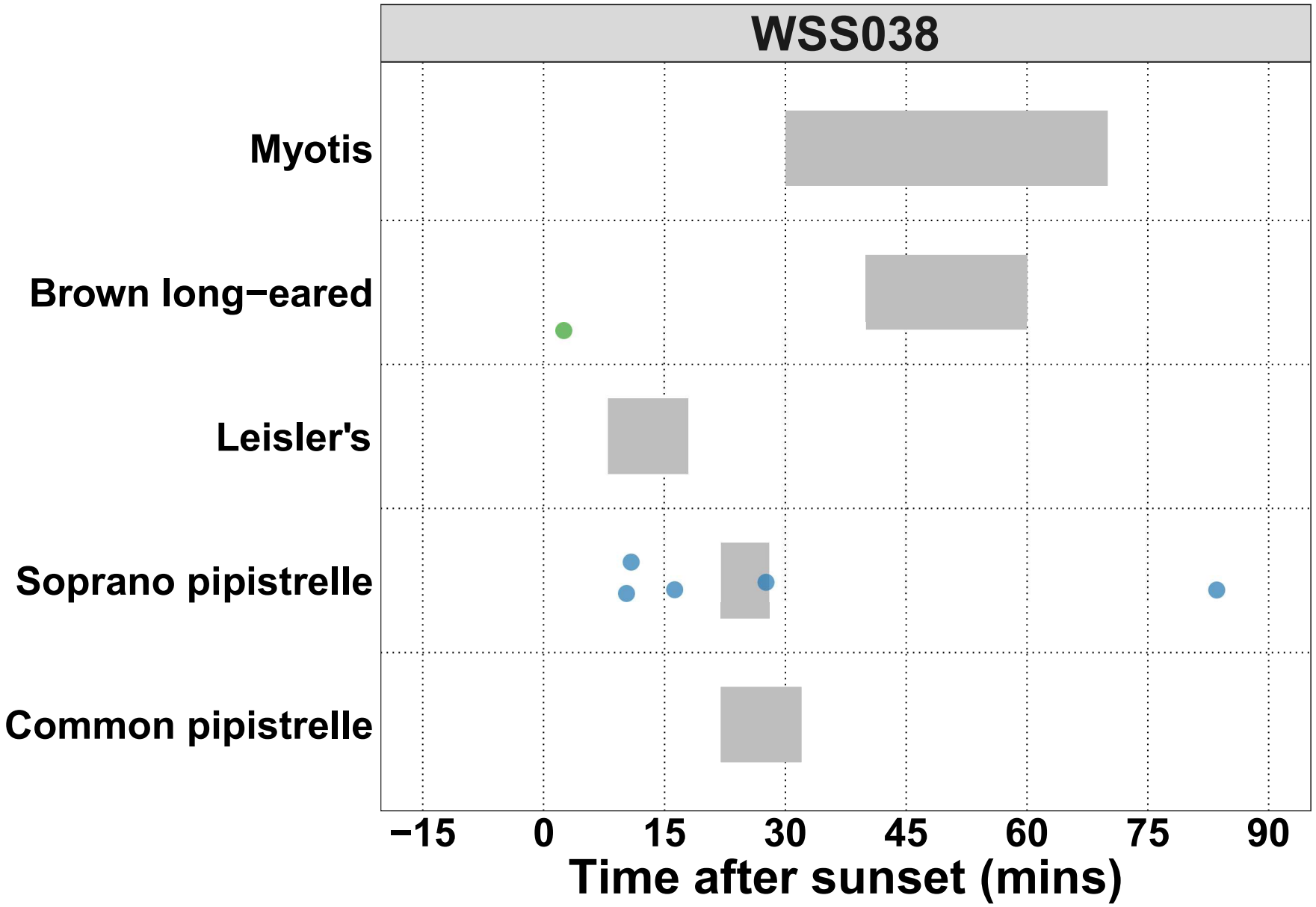

WSS029
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

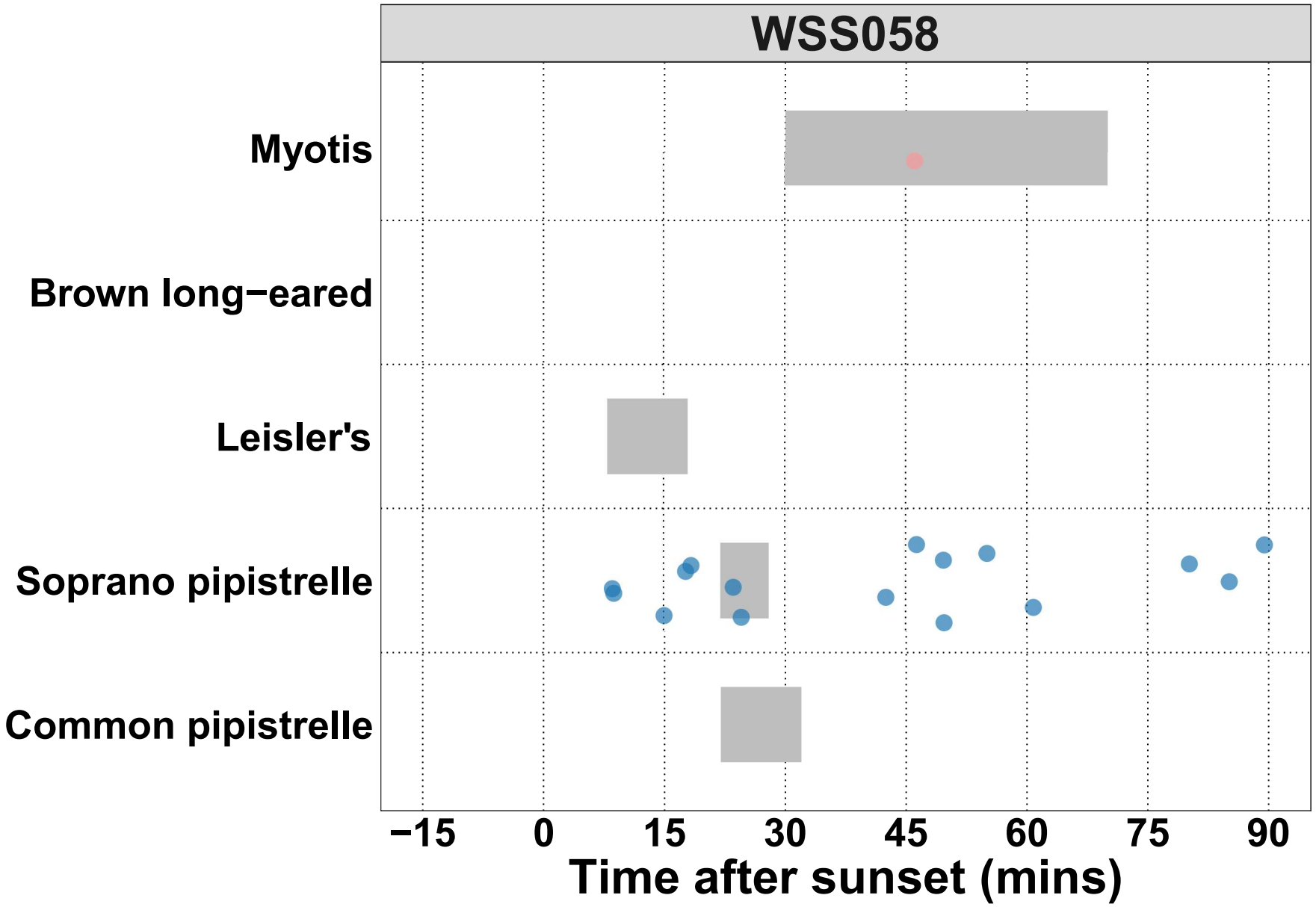

WSS034
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

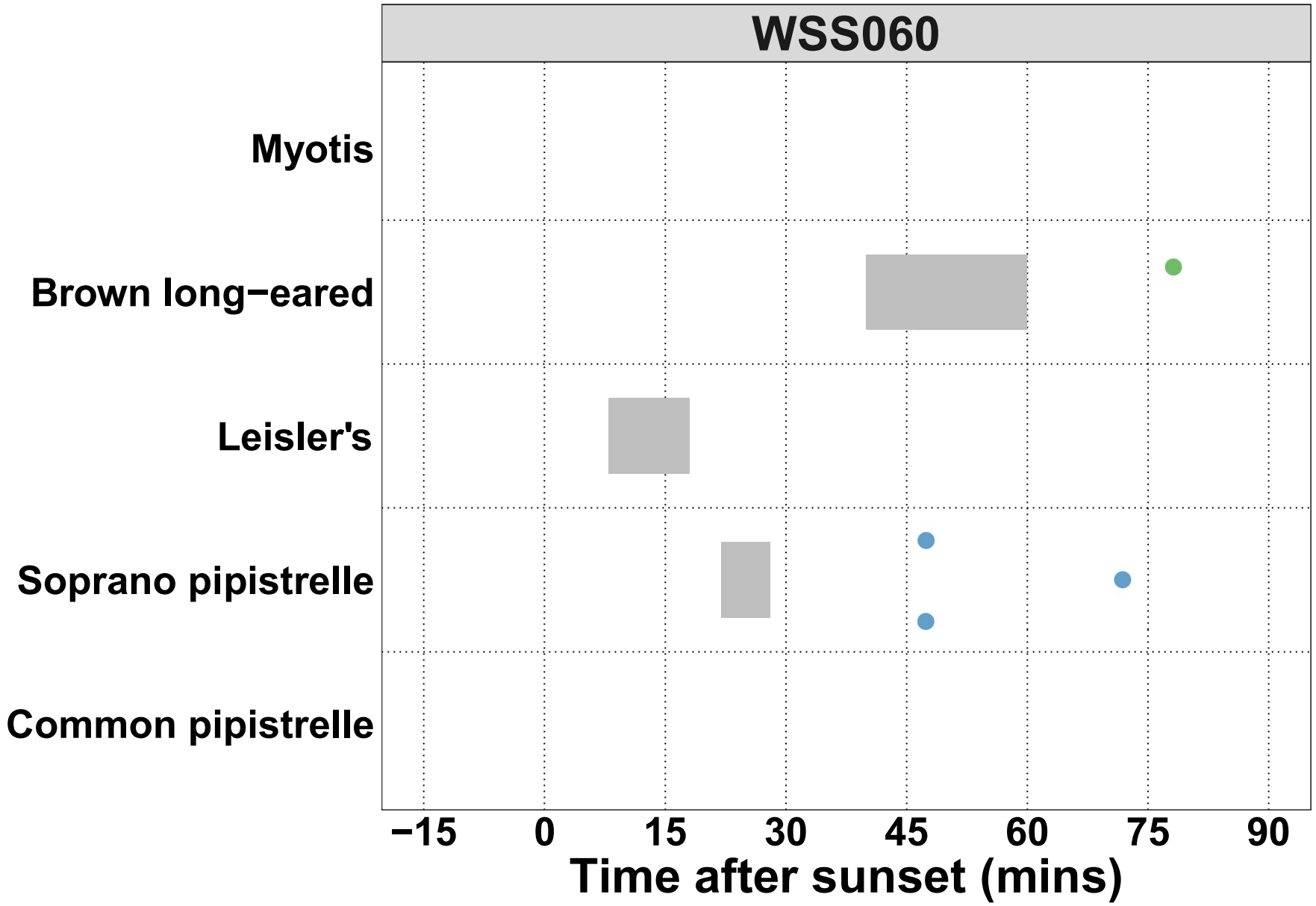

WSS035
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

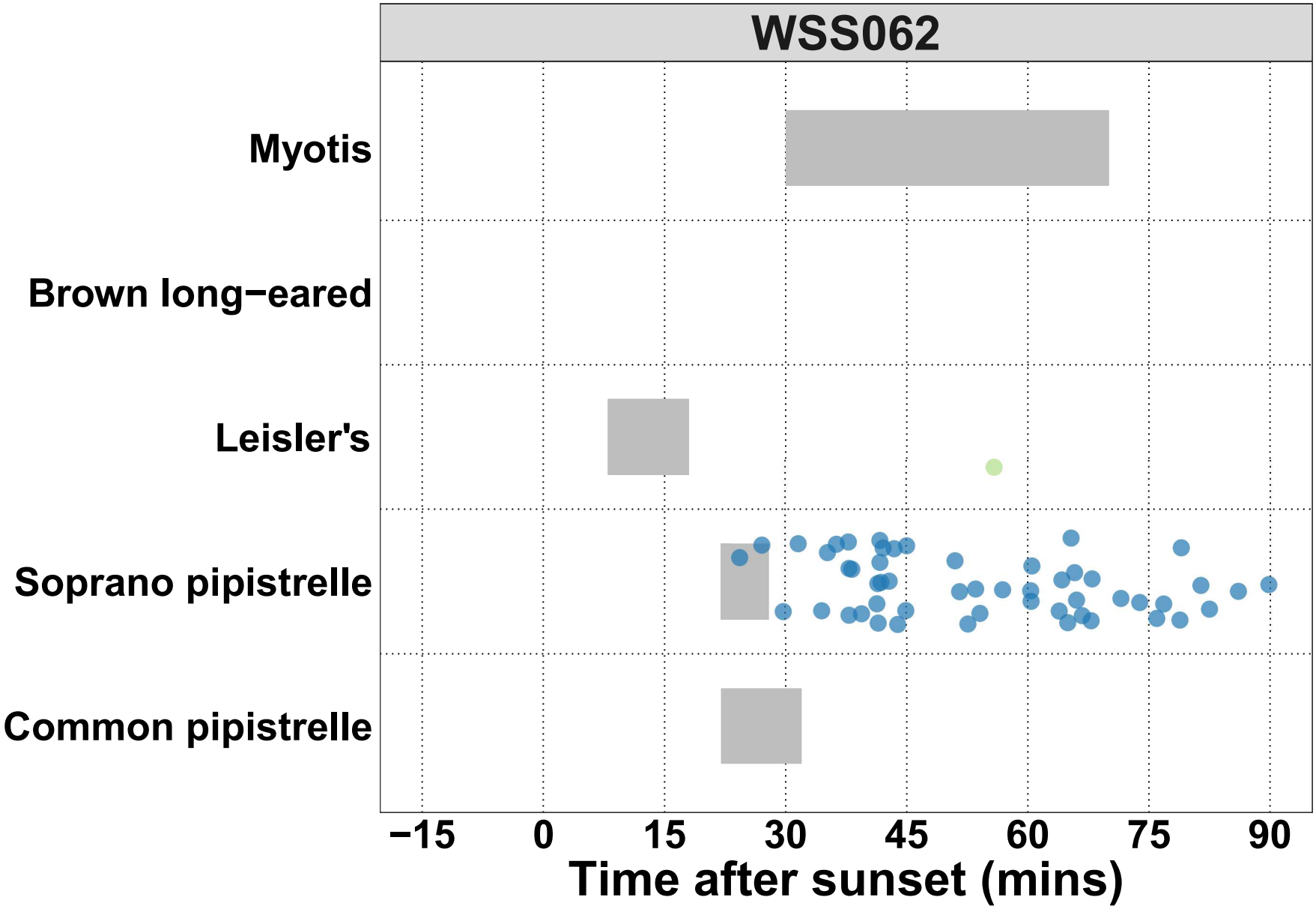

WSS036
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

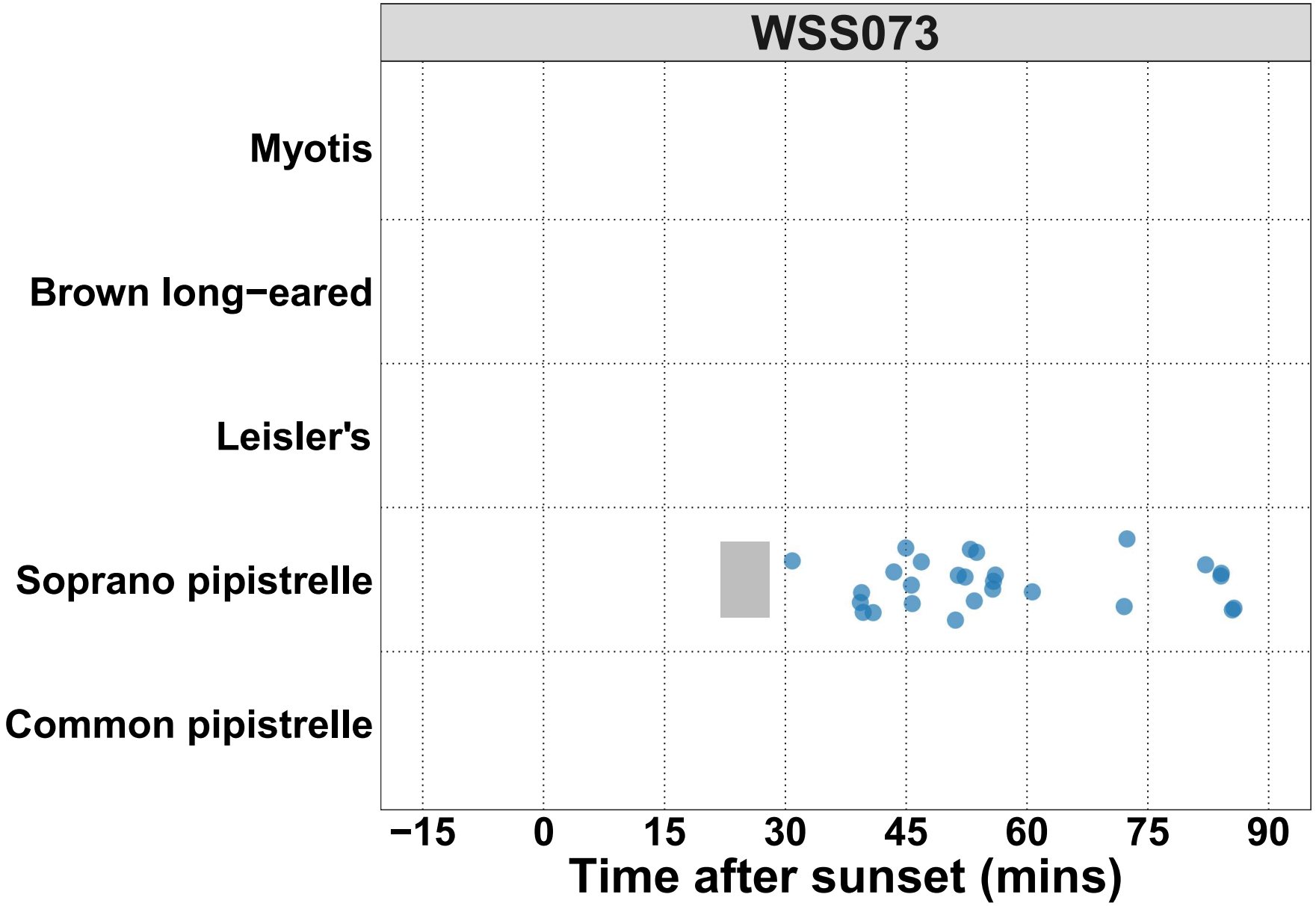

WSS037
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

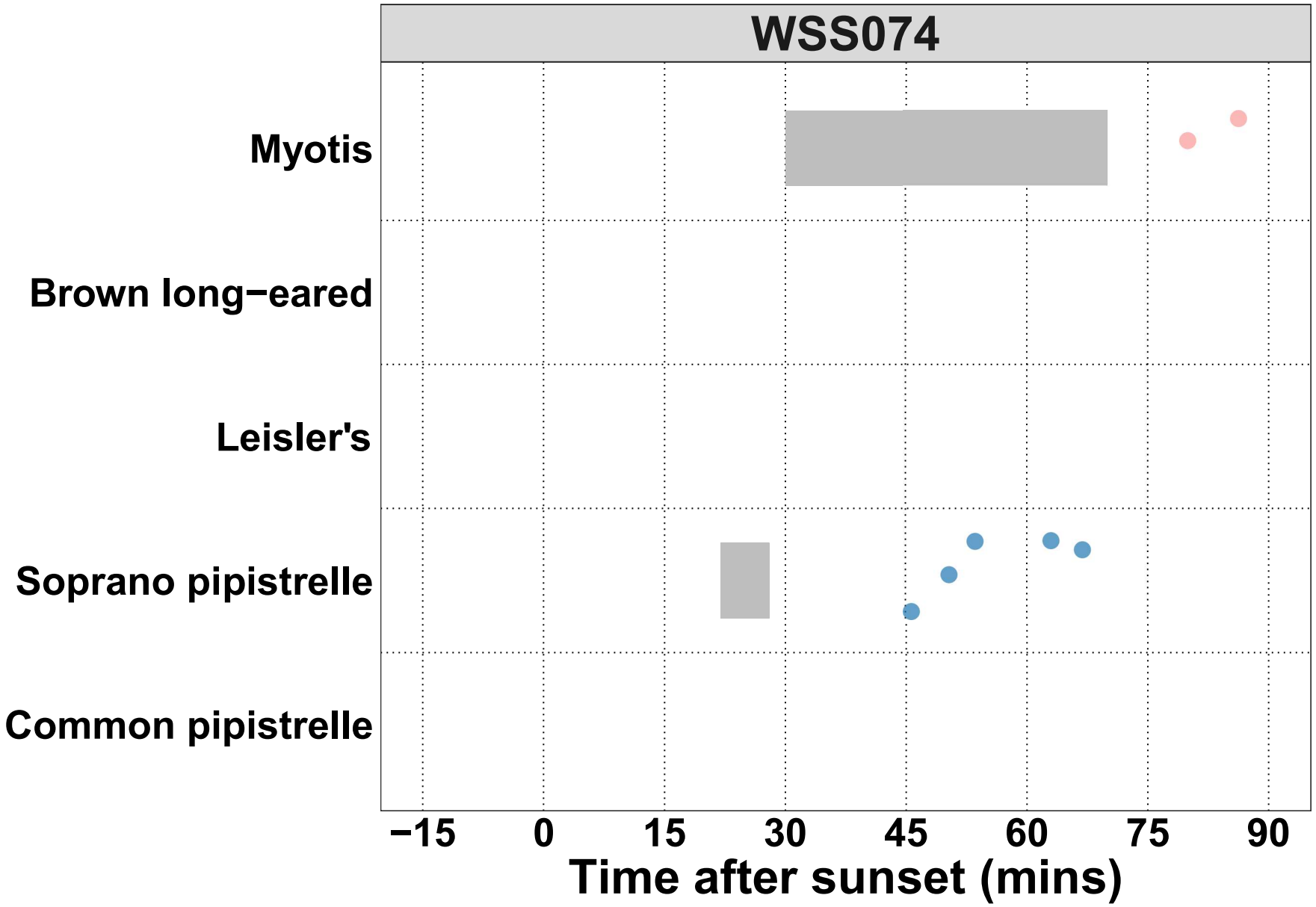

WSS038
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

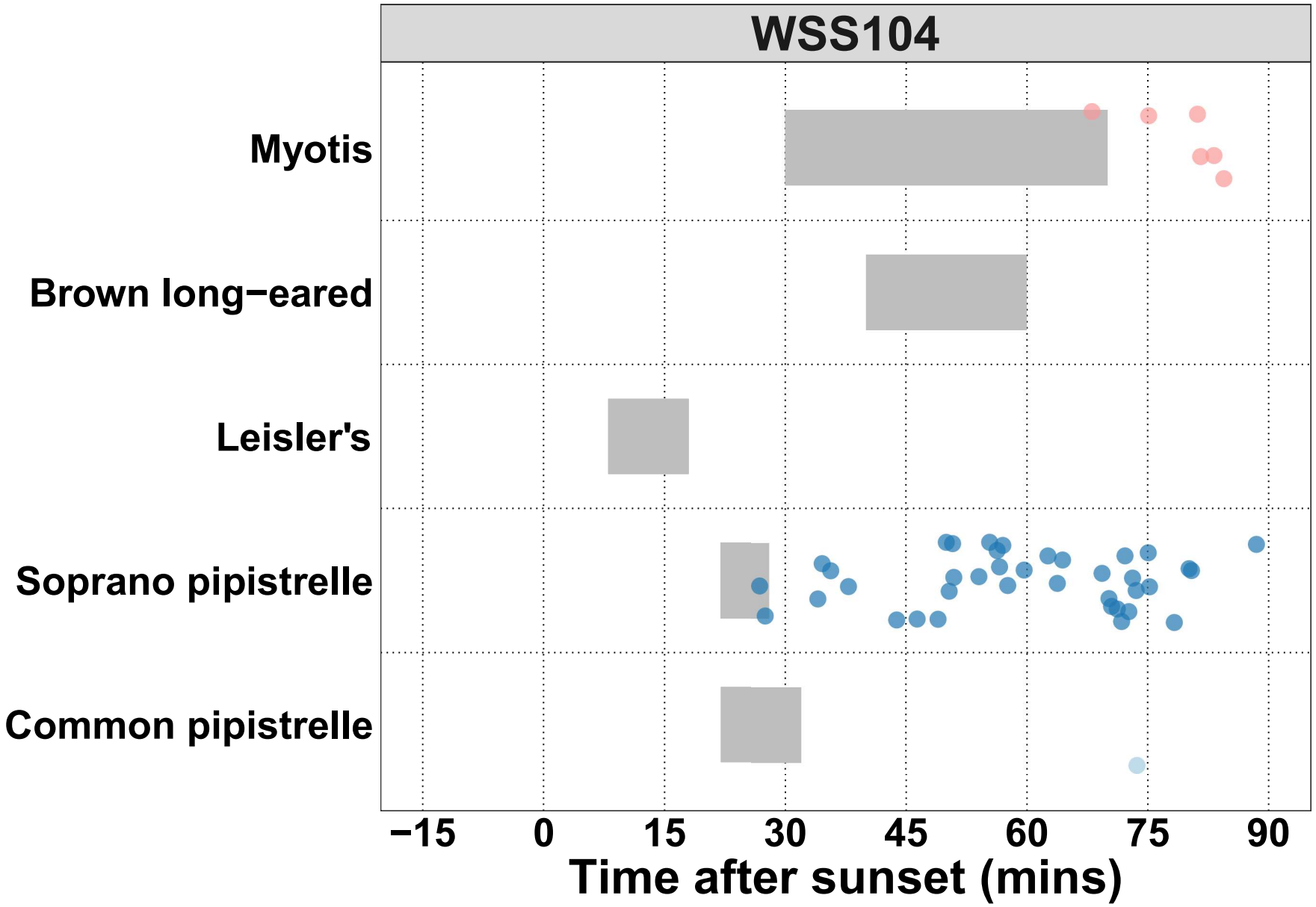

WSS058
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

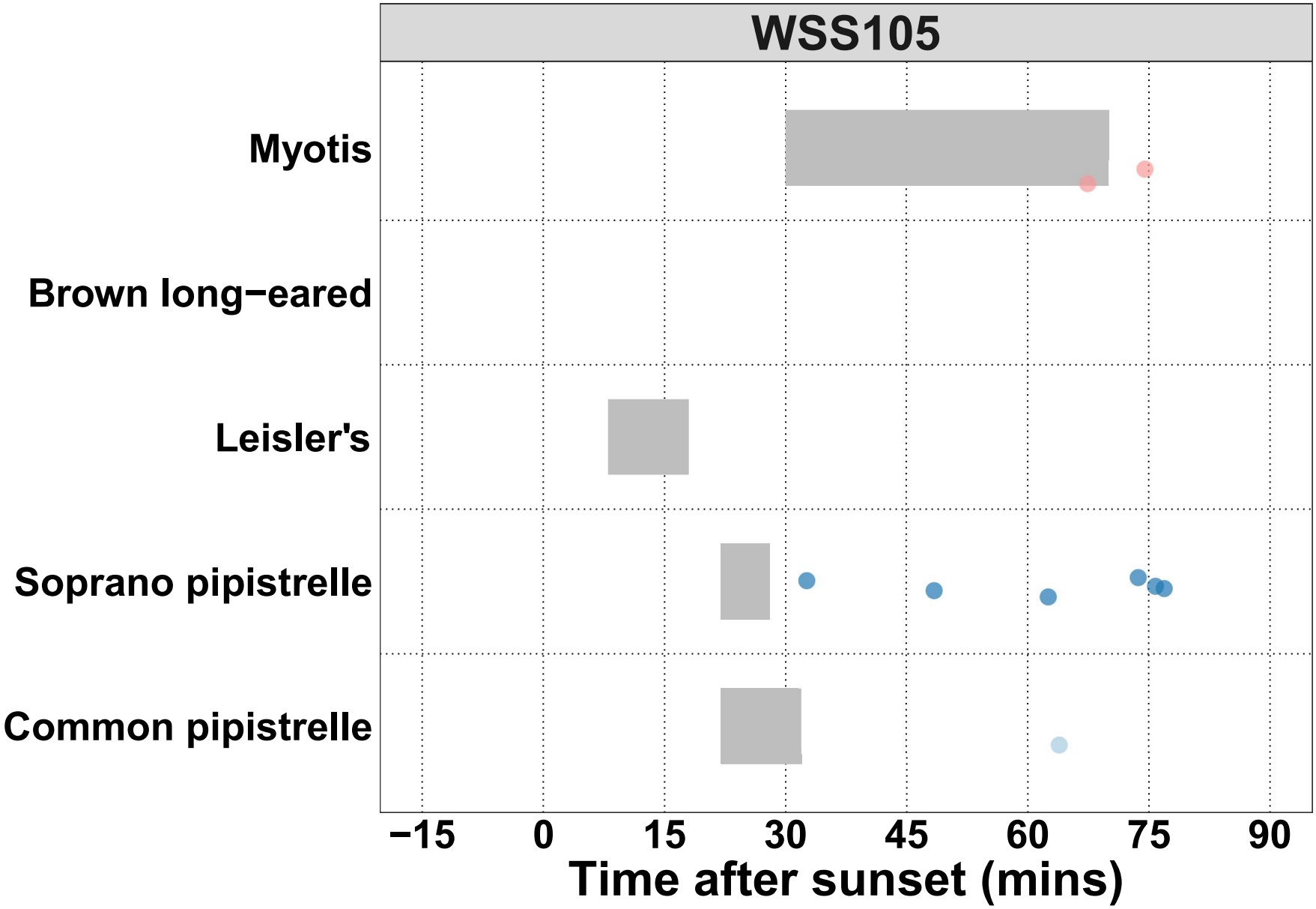

WSS060
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)


WSS062
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)


WSS073
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)


WSS074
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)


WSS104
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)


WSS105
Myotis
Brown long−eared
Leisler's
Soprano pipistrelle
Common pipistrelle
−15
0
15
30
45
60
75
90
Time after sunset (mins)

Count of Bat Passes

All Detectors

Table 14. The total number of passes recorded for each species across all of the detectors.

The 'Total' percentage may not be exactly 100% due to rounding of the percentages per species.

Species	Passes (no.)	Percentage of Total (%)
Myotis	519	3.7
Nyctalus leisleri	101	0.7
Pipistrellus pipistrellus	162	1.2
Pipistrellus pygmaeus	13145	93.7
Plecotus auritus	104	0.7
Total	14031	100.0

Per Detector

The number of passes recorded for each species at each detector.

Species	Detector ID	Count (no.)	Percentage by Detector (%)
Common pipistrelle	WSS029	26	25.2427184
Common pipistrelle	WSS031	4	1.1834320
Common pipistrelle	WSS033	5	0.1130454
Common pipistrelle	WSS034	1	0.4608295
Common pipistrelle	WSS035	70	3.3816425
Common pipistrelle	WSS036	1	5.0000000
Common pipistrelle	WSS037	3	7.6923077
Common pipistrelle	WSS038	2	6.0606061
Common pipistrelle	WSS053	6	4.0540541
Common pipistrelle	WSS056	6	0.4464286
Common pipistrelle	WSS058	1	0.7936508
Common pipistrelle	WSS059	15	11.9047619
Common pipistrelle	WSS061	1	0.2531646
Common pipistrelle	WSS062	1	0.2325581
Common pipistrelle	WSS063	4	0.2564103
Common pipistrelle	WSS073	2	0.3984064
Common pipistrelle	WSS076	1	6.2500000
Common pipistrelle	WSS097	1	5.8823529
Common pipistrelle	WSS104	4	2.2099448
Common pipistrelle	WSS105	6	1.1342155
Common pipistrelle	WSS106	2	0.4494382
Soprano pipistrelle	WSS026	6	50.0000000
Soprano pipistrelle	WSS027	11	50.0000000
Soprano pipistrelle	WSS029	55	53.3980583
Soprano pipistrelle	WSS031	299	88.4615385
Soprano pipistrelle	WSS033	4382	99.0730274
Soprano pipistrelle	WSS034	200	92.1658986
Soprano pipistrelle	WSS035	1969	95.1207729
Soprano pipistrelle	WSS036	12	60.0000000
Soprano pipistrelle	WSS037	30	76.9230769
Soprano pipistrelle	WSS038	19	57.5757576
Soprano pipistrelle	WSS053	132	89.1891892

Species	Detector ID	Count (no.)	Percentage by Detector (%)
Soprano pipistrelle	WSS056	1302	96.8750000
Soprano pipistrelle	WSS058	121	96.0317460
Soprano pipistrelle	WSS059	65	51.5873016
Soprano pipistrelle	WSS060	252	94.7368421
Soprano pipistrelle	WSS061	291	73.6708861
Soprano pipistrelle	WSS062	416	96.7441860
Soprano pipistrelle	WSS063	1523	97.6282051
Soprano pipistrelle	WSS064	19	95.0000000
Soprano pipistrelle	WSS071	28	75.6756757
Soprano pipistrelle	WSS073	434	86.4541833
Soprano pipistrelle	WSS074	28	63.6363636
Soprano pipistrelle	WSS076	13	81.2500000
Soprano pipistrelle	WSS077	22	91.6666667
Soprano pipistrelle	WSS097	12	70.5882353
Soprano pipistrelle	WSS100	448	98.6784141
Soprano pipistrelle	WSS101	15	34.8837209
Soprano pipistrelle	WSS103	34	72.3404255
Soprano pipistrelle	WSS104	161	88.9502762
Soprano pipistrelle	WSS105	450	85.0661626
Soprano pipistrelle	WSS106	396	88.9887640
Leisler's	WSS027	3	13.6363636
Leisler's	WSS029	5	4.8543689
Leisler's	WSS034	15	6.9124424
Leisler's	WSS035	8	0.3864734
Leisler's	WSS038	4	12.1212121
Leisler's	WSS056	18	1.3392857
Leisler's	WSS058	1	0.7936508
Leisler's	WSS060	9	3.3834586
Leisler's	WSS062	6	1.3953488
Leisler's	WSS063	6	0.3846154
Leisler's	WSS073	5	0.9960159
Leisler's	WSS101	7	16.2790698
Leisler's	WSS103	2	4.2553191
Leisler's	WSS104	2	1.1049724
Leisler's	WSS105	8	1.5122873
Leisler's	WSS106	2	0.4494382

Species	Detector ID	Count (no.)	Percentage by Detector (%)
Brown long-eared	WSS026	2	16.6666667
Brown long-eared	WSS027	7	31.8181818
Brown long-eared	WSS029	8	7.7669903
Brown long-eared	WSS031	3	0.8875740
Brown long-eared	WSS033	5	0.1130454
Brown long-eared	WSS034	1	0.4608295
Brown long-eared	WSS037	2	5.1282051
Brown long-eared	WSS038	6	18.1818182
Brown long-eared	WSS053	1	0.6756757
Brown long-eared	WSS056	2	0.1488095
Brown long-eared	WSS059	6	4.7619048
Brown long-eared	WSS060	5	1.8796992
Brown long-eared	WSS061	3	0.7594937
Brown long-eared	WSS063	11	0.7051282
Brown long-eared	WSS064	1	5.0000000
Brown long-eared	WSS076	1	6.2500000
Brown long-eared	WSS077	2	8.3333333
Brown long-eared	WSS097	4	23.5294118
Brown long-eared	WSS101	20	46.5116279
Brown long-eared	WSS103	7	14.8936170
Brown long-eared	WSS104	3	1.6574586
Brown long-eared	WSS105	2	0.3780718
Brown long-eared	WSS106	2	0.4494382
Myotis	WSS026	4	33.3333333
Myotis	WSS027	1	4.5454545
Myotis	WSS029	9	8.7378641
Myotis	WSS031	32	9.4674556
Myotis	WSS033	31	0.7008818
Myotis	WSS035	23	1.1111111
Myotis	WSS036	7	35.0000000
Myotis	WSS037	4	10.2564103
Myotis	WSS038	2	6.0606061
Myotis	WSS053	9	6.0810811
Myotis	WSS056	16	1.1904762
Myotis	WSS058	3	2.3809524
Myotis	WSS059	40	31.7460317

Species	Detector ID	Count (no.)	Percentage by Detector (%)
Myotis	WSS061	100	25.3164557
Myotis	WSS062	7	1.6279070
Myotis	WSS063	16	1.0256410
Myotis	WSS071	9	24.3243243
Myotis	WSS073	61	12.1513944
Myotis	WSS074	16	36.3636364
Myotis	WSS076	1	6.2500000
Myotis	WSS100	6	1.3215859
Myotis	WSS101	1	2.3255814
Myotis	WSS103	4	8.5106383
Myotis	WSS104	11	6.0773481
Myotis	WSS105	63	11.9092628
Myotis	WSS106	43	9.6629213

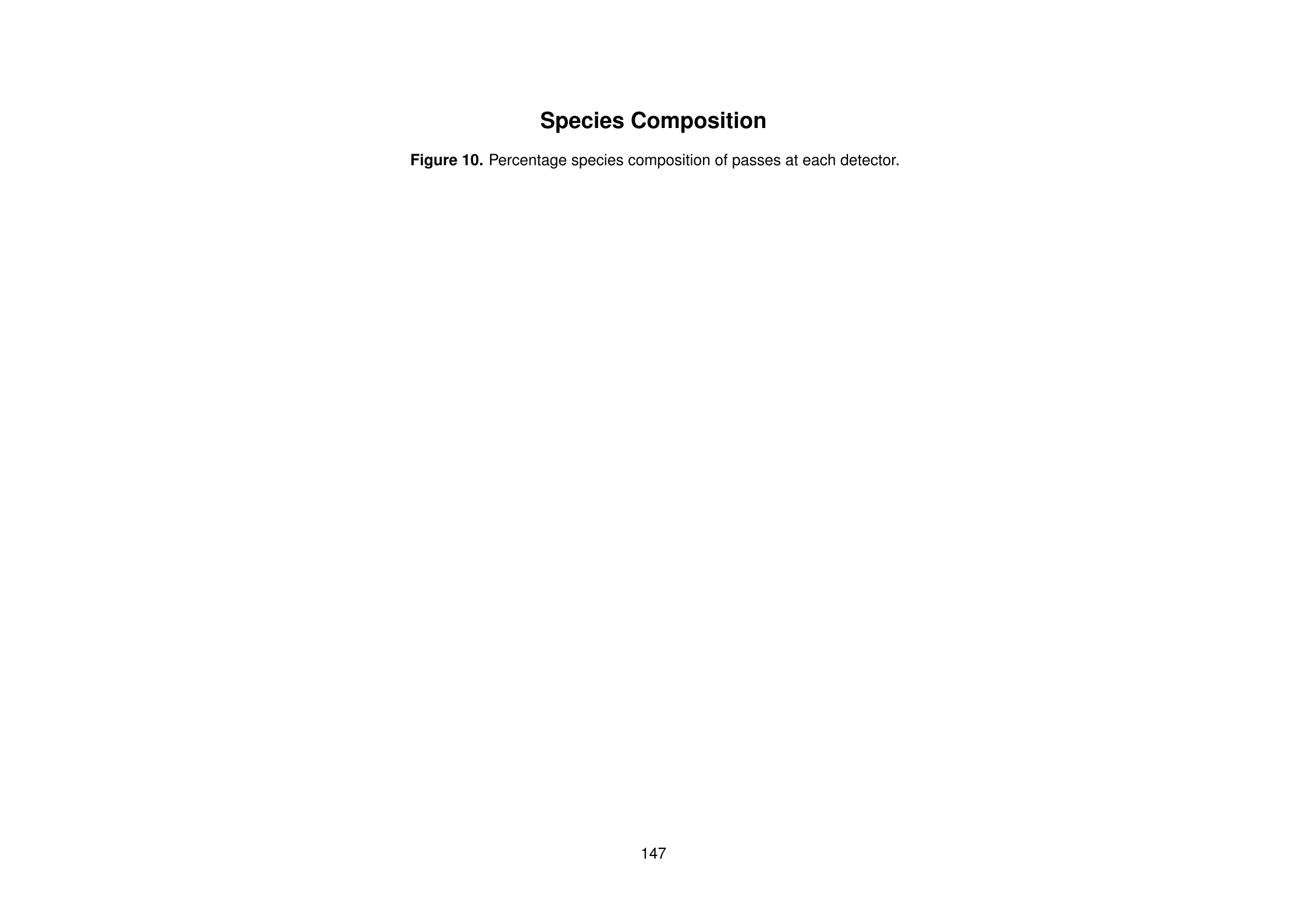
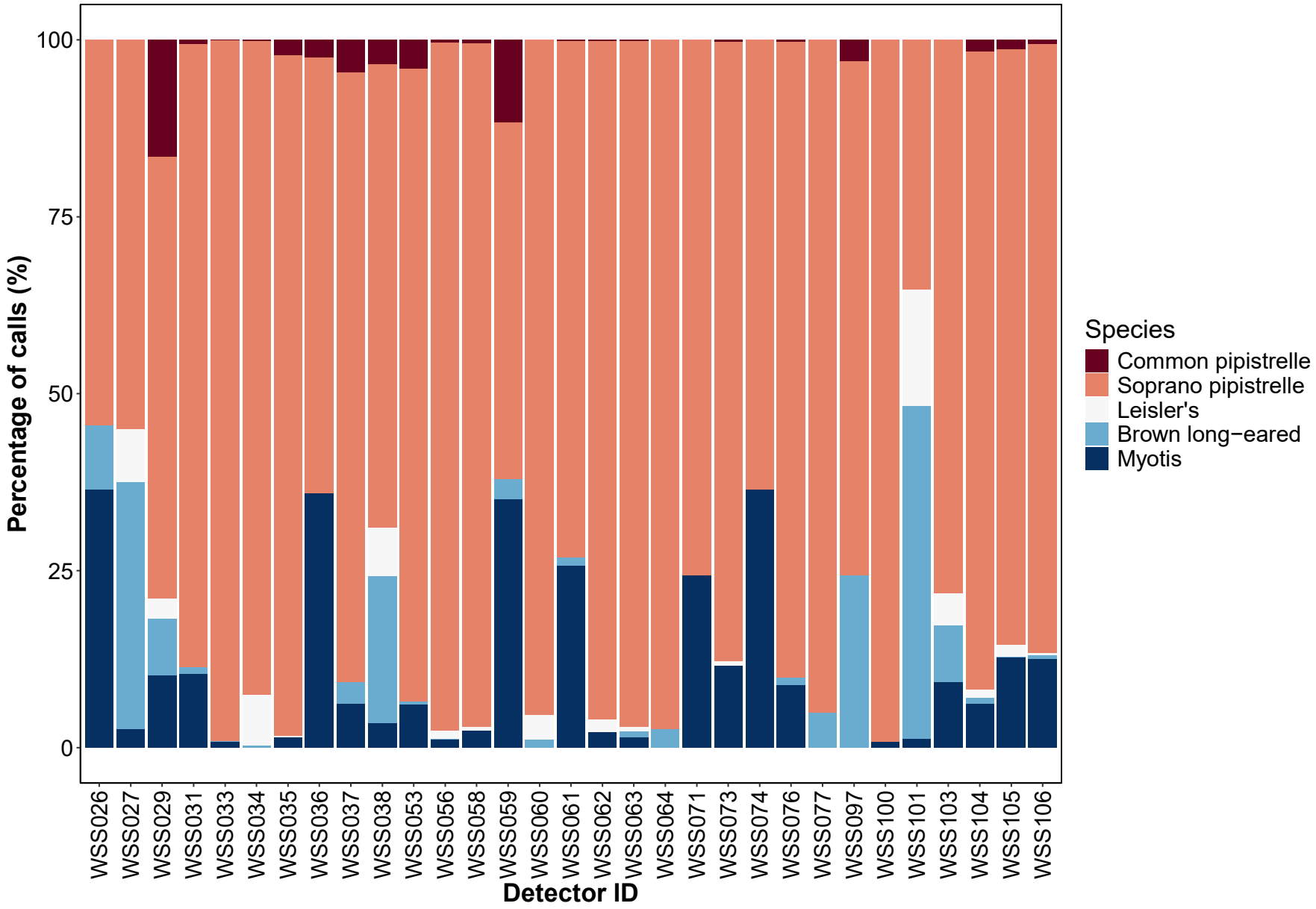


Figure 10. Percentage species composition of passes at each detector.


Percentage of calls (%)
100
75
50
25
0
WSS026
WSS027
WSS029
WSS031
WSS033
WSS034
WSS035
WSS036
WSS037
WSS038
WSS053
WSS056
WSS058
WSS059
WSS060
WSS061
WSS062
WSS063
WSS064
WSS071
WSS073
WSS074
WSS076
WSS077
WSS097
WSS100
WSS101
WSS103
WSS104
WSS105
WSS106
Detector ID
Species
Common pipistrelle
Soprano pipistrelle
Leisler's
Brown long−eared
Myotis

Part 2a: Presence Only

THE NEXT SECTION OF THE REPORT FEATURES THE RAW DATA SUPPLIED TO ECOBAT AND ONLY TAKES INTO ACCOUNT THE PRESENCE, AND NOT THE ABSENCE, OF EACH BAT SPECIES. FOR EACH NIGHT, THERE IS NO 'ZERO DATA' FOR WHEN SPECIES WERE NOT DETECTED.

Nighlty Bat Passes Per Hour

Median Per Detector

Table 16. The median Nightly Pass Rate (bat passes per hour, per night) of each species. If NA, then no bat passes.

Bat pass rates are often highly variable between nights, with some nights having few or no passes and other nights having high activity. In these circumstances, the median is likely to be a more useful summary of the 'average' activity than is the mean. For further information see: Lintott, P. R., & Mathews, F. (2018). Basic mathematical errors may make ecological assessments unreliable. Biodiversity and Conservation, 27(1), 265-267. https://doi.org/10.1007/s10531-017-1418-5

Species	Detector ID	Median Pass Rate
Common pipistrelle	WSS029	0.4
Common pipistrelle	WSS031	0.3
Common pipistrelle	WSS033	0.2
Common pipistrelle	WSS034	0.1
Common pipistrelle	WSS035	0.8
Common pipistrelle	WSS036	0.1
Common pipistrelle	WSS037	0.4
Common pipistrelle	WSS038	0.2
Common pipistrelle	WSS053	0.4
Common pipistrelle	WSS056	0.1
Common pipistrelle	WSS058	0.1
Common pipistrelle	WSS059	0.4
Common pipistrelle	WSS061	0.1
Common pipistrelle	WSS062	0.1
Common pipistrelle	WSS063	0.1
Common pipistrelle	WSS073	0.3
Common pipistrelle	WSS076	0.1
Common pipistrelle	WSS097	0.1
Common pipistrelle	WSS104	0.3
Common pipistrelle	WSS105	0.8
Common pipistrelle	WSS106	0.1
Soprano pipistrelle	WSS026	0.8
Soprano pipistrelle	WSS027	0.8
Soprano pipistrelle	WSS029	2.9
Soprano pipistrelle	WSS031	19.1
Soprano pipistrelle	WSS033	26.5
Soprano pipistrelle	WSS034	12.5
Soprano pipistrelle	WSS035	19.2
Soprano pipistrelle	WSS036	1.8
Soprano pipistrelle	WSS037	3.3
Soprano pipistrelle	WSS038	2.4
Soprano pipistrelle	WSS053	9.8
Soprano pipistrelle	WSS056	21.2
Soprano pipistrelle	WSS058	12.1
Soprano pipistrelle	WSS059	1.6
Soprano pipistrelle	WSS060	31.9

Species	Detector ID	Median Pass Rate
Soprano pipistrelle	WSS061	13.0
Soprano pipistrelle	WSS062	14.7
Soprano pipistrelle	WSS063	28.5
Soprano pipistrelle	WSS064	2.7
Soprano pipistrelle	WSS071	4.0
Soprano pipistrelle	WSS073	7.6
Soprano pipistrelle	WSS074	2.0
Soprano pipistrelle	WSS076	13.0
Soprano pipistrelle	WSS077	0.9
Soprano pipistrelle	WSS097	0.9
Soprano pipistrelle	WSS100	18.4
Soprano pipistrelle	WSS101	1.1
Soprano pipistrelle	WSS103	4.8
Soprano pipistrelle	WSS104	10.2
Soprano pipistrelle	WSS105	6.5
Soprano pipistrelle	WSS106	14.7
Leisler's	WSS027	0.2
Leisler's	WSS029	0.4
Leisler's	WSS034	2.0
Leisler's	WSS035	0.4
Leisler's	WSS038	0.5
Leisler's	WSS056	0.3
Leisler's	WSS058	0.1
Leisler's	WSS060	1.1
Leisler's	WSS062	0.8
Leisler's	WSS063	0.5
Leisler's	WSS073	0.4
Leisler's	WSS101	0.5
Leisler's	WSS103	0.3
Leisler's	WSS104	0.3
Leisler's	WSS105	1.0
Leisler's	WSS106	0.1
Brown long-eared	WSS026	0.3
Brown long-eared	WSS027	0.5
Brown long-eared	WSS029	0.5
Brown long-eared	WSS031	0.2

Species	Detector ID	Median Pass Rate
Brown long-eared	WSS033	0.2
Brown long-eared	WSS034	0.1
Brown long-eared	WSS037	0.2
Brown long-eared	WSS038	0.8
Brown long-eared	WSS053	0.1
Brown long-eared	WSS056	0.1
Brown long-eared	WSS059	0.1
Brown long-eared	WSS060	0.4
Brown long-eared	WSS061	0.3
Brown long-eared	WSS063	0.9
Brown long-eared	WSS064	0.1
Brown long-eared	WSS076	0.3
Brown long-eared	WSS077	0.1
Brown long-eared	WSS097	0.3
Brown long-eared	WSS101	1.5
Brown long-eared	WSS103	1.0
Brown long-eared	WSS104	0.4
Brown long-eared	WSS105	0.1
Brown long-eared	WSS106	0.1
Myotis	WSS026	0.5
Myotis	WSS027	0.1
Myotis	WSS029	0.5
Myotis	WSS031	2.5
Myotis	WSS033	0.9
Myotis	WSS035	2.8
Myotis	WSS036	1.0
Myotis	WSS037	0.2
Myotis	WSS038	0.2
Myotis	WSS053	0.7
Myotis	WSS056	0.2
Myotis	WSS058	0.3
Myotis	WSS059	0.4
Myotis	WSS061	5.0
Myotis	WSS062	0.9
Myotis	WSS063	1.2
Myotis	WSS071	1.3

Species	Detector ID	Median Pass Rate
Myotis	WSS073	2.6
Myotis	WSS074	1.1
Myotis	WSS076	2.5
Myotis	WSS100	0.2
Myotis	WSS101	0.1
Myotis	WSS103	0.6
Myotis	WSS104	1.4
Myotis	WSS105	2.4
Myotis	WSS106	3.2

Mean Per Detector

Table 17. The mean Nightly Pass Rate (bat passes per hour, per night) of each species at each detector. Values are given to 1 decimal place.

We recommend using the median values given above, for the reasons stated above, but provide the mean values in the table below.

Species	Detector ID	Mean Pass Rate
Common pipistrelle	WSS029	0.9
Common pipistrelle	WSS031	0.3
Common pipistrelle	WSS033	0.2
Common pipistrelle	WSS034	0.1
Common pipistrelle	WSS035	2.1
Common pipistrelle	WSS036	0.1
Common pipistrelle	WSS037	0.4
Common pipistrelle	WSS038	0.2
Common pipistrelle	WSS053	0.4
Common pipistrelle	WSS056	0.1
Common pipistrelle	WSS058	0.1
Common pipistrelle	WSS059	0.5
Common pipistrelle	WSS061	0.1
Common pipistrelle	WSS062	0.1
Common pipistrelle	WSS063	0.1
Common pipistrelle	WSS073	0.3
Common pipistrelle	WSS076	0.1
Common pipistrelle	WSS097	0.1
Common pipistrelle	WSS104	0.2
Common pipistrelle	WSS105	0.8
Common pipistrelle	WSS106	0.1
Soprano pipistrelle	WSS026	0.8
Soprano pipistrelle	WSS027	0.8
Soprano pipistrelle	WSS029	2.9
Soprano pipistrelle	WSS031	14.2
Soprano pipistrelle	WSS033	38.2
Soprano pipistrelle	WSS034	10.8
Soprano pipistrelle	WSS035	22.3
Soprano pipistrelle	WSS036	1.8
Soprano pipistrelle	WSS037	2.4

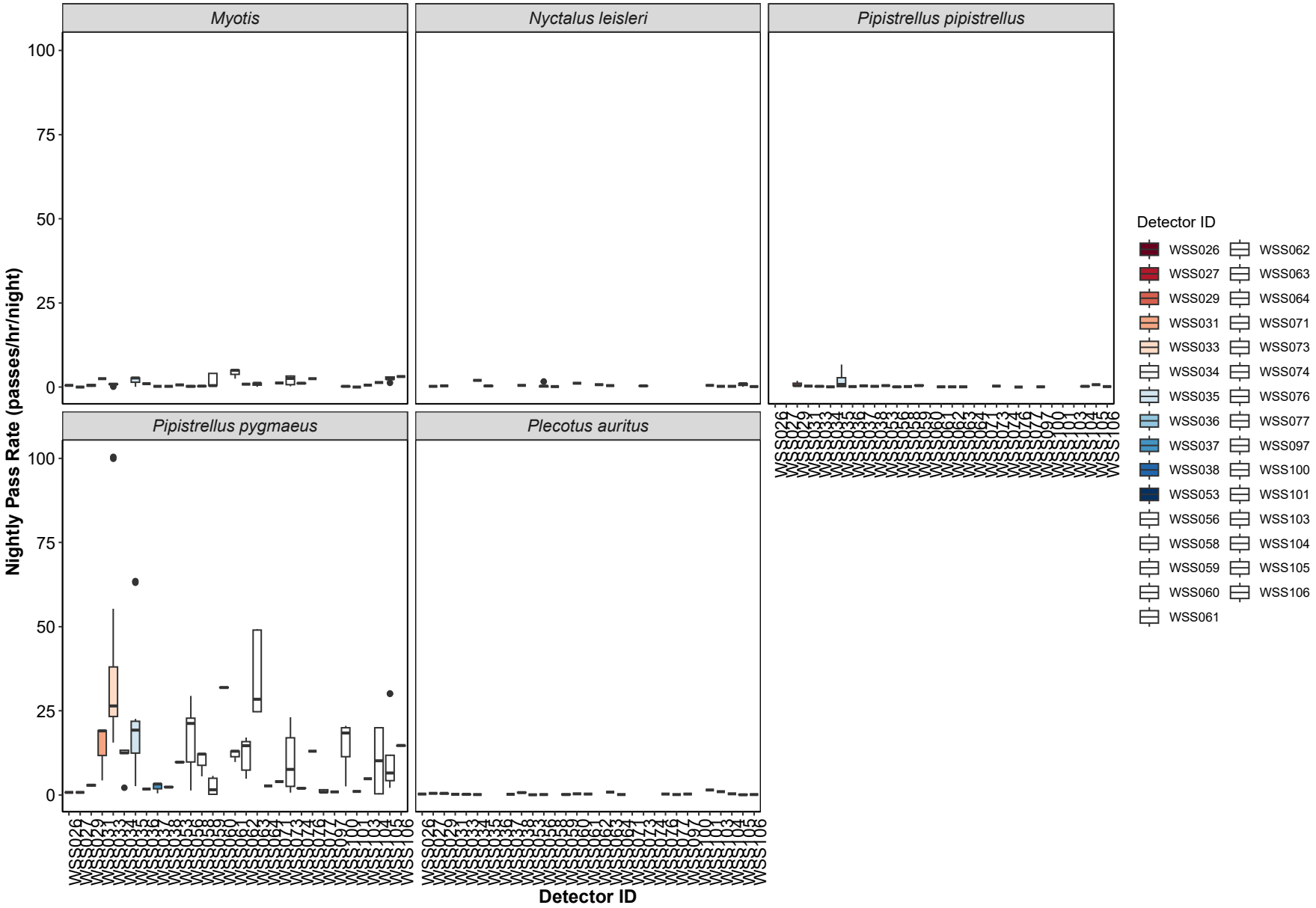
Species	Detector ID	Mean Pass Rate
Soprano pipistrelle	WSS038	2.4
Soprano pipistrelle	WSS053	9.8
Soprano pipistrelle	WSS056	16.7
Soprano pipistrelle	WSS058	9.9
Soprano pipistrelle	WSS059	2.5
Soprano pipistrelle	WSS060	31.9
Soprano pipistrelle	WSS061	12.0
Soprano pipistrelle	WSS062	11.9
Soprano pipistrelle	WSS063	35.2
Soprano pipistrelle	WSS064	2.7
Soprano pipistrelle	WSS071	4.0
Soprano pipistrelle	WSS073	10.6
Soprano pipistrelle	WSS074	2.0
Soprano pipistrelle	WSS076	13.0
Soprano pipistrelle	WSS077	1.1
Soprano pipistrelle	WSS097	0.9
Soprano pipistrelle	WSS100	14.9
Soprano pipistrelle	WSS101	1.1
Soprano pipistrelle	WSS103	4.8
Soprano pipistrelle	WSS104	10.2
Soprano pipistrelle	WSS105	11.6
Soprano pipistrelle	WSS106	14.7
Leisler's	WSS027	0.2
Leisler's	WSS029	0.4
Leisler's	WSS034	2.0
Leisler's	WSS035	0.3
Leisler's	WSS038	0.5
Leisler's	WSS056	0.5
Leisler's	WSS058	0.1
Leisler's	WSS060	1.1
Leisler's	WSS062	0.8
Leisler's	WSS063	0.5
Leisler's	WSS073	0.4
Leisler's	WSS101	0.5
Leisler's	WSS103	0.3
Leisler's	WSS104	0.3

Species	Detector ID	Mean Pass Rate
Leisler's	WSS105	0.7
Leisler's	WSS106	0.1
Brown long-eared	WSS026	0.3
Brown long-eared	WSS027	0.5
Brown long-eared	WSS029	0.4
Brown long-eared	WSS031	0.2
Brown long-eared	WSS033	0.2
Brown long-eared	WSS034	0.1
Brown long-eared	WSS037	0.2
Brown long-eared	WSS038	0.8
Brown long-eared	WSS053	0.1
Brown long-eared	WSS056	0.1
Brown long-eared	WSS059	0.2
Brown long-eared	WSS060	0.4
Brown long-eared	WSS061	0.3
Brown long-eared	WSS063	0.9
Brown long-eared	WSS064	0.1
Brown long-eared	WSS076	0.3
Brown long-eared	WSS077	0.1
Brown long-eared	WSS097	0.3
Brown long-eared	WSS101	1.5
Brown long-eared	WSS103	1.0
Brown long-eared	WSS104	0.4
Brown long-eared	WSS105	0.1
Brown long-eared	WSS106	0.1
Myotis	WSS026	0.5
Myotis	WSS027	0.1
Myotis	WSS029	0.5
Myotis	WSS031	2.5
Myotis	WSS033	0.8
Myotis	WSS035	1.9
Myotis	WSS036	1.0
Myotis	WSS037	0.2
Myotis	WSS038	0.2
Myotis	WSS053	0.7
Myotis	WSS056	0.3

Species	Detector ID	Mean Pass Rate
Myotis	WSS058	0.2
Myotis	WSS059	1.9
Myotis	WSS061	4.2
Myotis	WSS062	0.9
Myotis	WSS063	0.8
Myotis	WSS071	1.3
Myotis	WSS073	2.1
Myotis	WSS074	1.1
Myotis	WSS076	2.5
Myotis	WSS100	0.2
Myotis	WSS101	0.1
Myotis	WSS103	0.6
Myotis	WSS104	1.4
Myotis	WSS105	2.4
Myotis	WSS106	3.2

Per Detector

Figure 11. Boxplots for the number of bat passes per hour each night, for each detector. The 'box' shows the interquartile range, which is where the middle 50% of the data lie. The line dividing the box is the median, the mid-point of the data. The 'whiskers' extend from the box and represent the ranges for the bottom 25% and the top 25% of the data values, excluding outliers. An outlier is any extreme value that lies further away from the box than 1.5 times the interquartile range. Outliers are shown as dots. Where very few passes are recorded it is not possible to produce the box, so the data are shown as a line.


Myotis
Nyctalus leisleri
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Plecotus auritus
Nightly Pass Rate (passes/hr/night)
0
25
50
75
100
Detector ID
Detector ID
WSS026
WSS027
WSS029
WSS031
WSS033
WSS034
WSS035
WSS036
WSS037
WSS038
WSS053
WSS056
WSS058
WSS059
WSS060
WSS061
WSS062
WSS063
WSS064
WSS071
WSS073
WSS074
WSS076
WSS077
WSS097
WSS100
WSS101
WSS103
WSS104
WSS105
WSS106

Split by Month

Total Bat Passes per Detector each Month

Table 18. The total number of bat passes of each species in each month at each detector.

This table simply tells you how many bats of each species were recorded passing each detector during each month. These numbers are not standardised by the night length, or how many nights each detector was active for during each month.

Species	Detector ID	May	Jun	Jul	Sep	Oct
Common pipistrelle	WSS029	0	6	0	0	23
Common pipistrelle	WSS031	0	0	0	0	4
Common pipistrelle	WSS033	0	0	0	0	7
Common pipistrelle	WSS034	0	0	1	0	0
Common pipistrelle	WSS035	0	0	66	2	2
Common pipistrelle	WSS036	0	1	0	0	0
Common pipistrelle	WSS037	0	0	3	0	0
Common pipistrelle	WSS038	0	0	2	0	0
Common pipistrelle	WSS053	0	0	0	0	12
Common pipistrelle	WSS056	0	3	0	0	3
Common pipistrelle	WSS058	0	1	0	0	0
Common pipistrelle	WSS059	0	8	0	0	17
Common pipistrelle	WSS061	0	0	0	0	1
Common pipistrelle	WSS062	0	0	1	0	0
Common pipistrelle	WSS063	0	0	0	0	4
Common pipistrelle	WSS073	0	2	0	0	0
Common pipistrelle	WSS076	0	0	0	0	1
Common pipistrelle	WSS097	0	0	0	0	1
Common pipistrelle	WSS104	0	0	4	0	2
Common pipistrelle	WSS105	0	0	12	0	0
Common pipistrelle	WSS106	0	0	0	0	4
Soprano pipistrelle	WSS026	12	0	0	0	0
Soprano pipistrelle	WSS027	0	0	0	0	22
Soprano pipistrelle	WSS029	0	42	0	34	34
Soprano pipistrelle	WSS031	0	0	0	0	542
Soprano pipistrelle	WSS033	975	0	0	0	5177
Soprano pipistrelle	WSS034	0	182	202	0	0
Soprano pipistrelle	WSS035	0	0	1251	1689	229
Soprano pipistrelle	WSS036	0	24	0	0	0
Soprano pipistrelle	WSS037	0	0	56	0	0
Soprano pipistrelle	WSS038	0	0	38	0	0
Soprano pipistrelle	WSS053	0	0	0	0	264
Soprano pipistrelle	WSS056	90	648	0	0	1079
Soprano pipistrelle	WSS058	0	204	0	0	0
Soprano pipistrelle	WSS059	0	101	0	0	7
Soprano pipistrelle	WSS060	0	0	504	0	0

Species	Detector ID	May	Jun	Jul	Sep	Oct
Soprano pipistrelle	WSS061	0	0	0	0	478
Soprano pipistrelle	WSS062	0	0	636	0	0
Soprano pipistrelle	WSS063	0	0	0	0	2221
Soprano pipistrelle	WSS064	0	38	0	0	0
Soprano pipistrelle	WSS071	0	56	0	0	0
Soprano pipistrelle	WSS073	0	656	0	0	0
Soprano pipistrelle	WSS074	0	56	0	0	0
Soprano pipistrelle	WSS076	0	0	0	0	348
Soprano pipistrelle	WSS077	0	39	0	0	0
Soprano pipistrelle	WSS097	0	0	0	0	24
Soprano pipistrelle	WSS100	0	367	0	229	229
Soprano pipistrelle	WSS101	0	0	0	0	30
Soprano pipistrelle	WSS103	0	68	0	0	0
Soprano pipistrelle	WSS104	0	0	312	0	10
Soprano pipistrelle	WSS105	0	509	217	27	27
Soprano pipistrelle	WSS106	0	0	0	0	595
Leisler's	WSS027	0	0	0	0	3
Leisler's	WSS029	0	0	0	0	5
Leisler's	WSS034	0	0	30	0	0
Leisler's	WSS035	0	0	7	0	1
Leisler's	WSS038	0	0	4	0	0
Leisler's	WSS056	0	13	0	0	9
Leisler's	WSS058	0	1	0	0	0
Leisler's	WSS060	0	0	18	0	0
Leisler's	WSS062	0	0	12	0	0
Leisler's	WSS063	0	0	0	0	12
Leisler's	WSS073	0	5	0	0	0
Leisler's	WSS101	0	0	0	0	14
Leisler's	WSS103	0	4	0	0	0
Leisler's	WSS104	0	0	4	0	0
Leisler's	WSS105	0	14	1	0	0
Leisler's	WSS106	0	0	0	0	2
Brown long-eared	WSS026	2	0	0	0	0
Brown long-eared	WSS027	0	0	0	0	14
Brown long-eared	WSS029	0	2	0	6	6
Brown long-eared	WSS031	0	0	0	0	6

Species	Detector ID	May	Jun	Jul	Sep	Oct
Brown long-eared	WSS033	0	0	0	0	5
Brown long-eared	WSS034	0	1	0	0	0
Brown long-eared	WSS037	0	0	2	0	0
Brown long-eared	WSS038	0	0	12	0	0
Brown long-eared	WSS053	0	0	0	0	1
Brown long-eared	WSS056	0	1	0	0	0
Brown long-eared	WSS059	0	3	0	0	3
Brown long-eared	WSS060	0	0	6	0	0
Brown long-eared	WSS061	0	0	0	0	8
Brown long-eared	WSS063	0	0	0	0	22
Brown long-eared	WSS064	0	1	0	0	0
Brown long-eared	WSS076	0	0	0	0	4
Brown long-eared	WSS077	0	2	0	0	0
Brown long-eared	WSS097	0	0	0	0	8
Brown long-eared	WSS101	0	0	0	0	40
Brown long-eared	WSS103	0	7	0	0	0
Brown long-eared	WSS104	0	0	3	0	0
Brown long-eared	WSS105	0	1	0	0	1
Brown long-eared	WSS106	0	0	0	0	4
Myotis	WSS026	8	0	0	0	0
Myotis	WSS027	0	0	0	0	1
Myotis	WSS029	0	10	0	4	4
Myotis	WSS031	0	0	0	0	64
Myotis	WSS033	14	0	0	0	35
Myotis	WSS035	0	0	45	0	0
Myotis	WSS036	0	14	0	0	0
Myotis	WSS037	0	0	4	0	0
Myotis	WSS038	0	0	2	0	0
Myotis	WSS053	0	0	0	0	18
Myotis	WSS056	2	6	0	0	13
Myotis	WSS058	0	5	0	0	0
Myotis	WSS059	0	58	0	0	17
Myotis	WSS061	0	0	0	0	168
Myotis	WSS062	0	0	14	0	0
Myotis	WSS063	0	0	0	0	31
Myotis	WSS071	0	18	0	0	0

Species	Detector ID	May	Jun	Jul	Sep	Oct
Myotis	WSS073	0	86	0	0	0
Myotis	WSS074	0	32	0	0	0
Myotis	WSS076	0	0	0	0	34
Myotis	WSS100	0	3	0	3	0
Myotis	WSS101	0	0	0	0	1
Myotis	WSS103	0	8	0	0	0
Myotis	WSS104	0	0	22	0	0
Myotis	WSS105	0	9	48	30	30
Myotis	WSS106	0	0	0	0	86

Survey Effort

Table 19. The number of survey nights per month per detector.

month	Detector ID	No. of Survey Nights
May	WSS026	2
May	WSS033	5
May	WSS056	2
Jun	WSS029	2
Jun	WSS034	2
Jun	WSS036	2
Jun	WSS056	5
Jun	WSS058	3
Jun	WSS059	3
Jun	WSS064	2
Jun	WSS071	2
Jun	WSS073	10
Jun	WSS074	4
Jun	WSS077	5
Jun	WSS100	4
Jun	WSS103	2
Jun	WSS105	4
Jul	WSS034	3
Jul	WSS035	6
Jul	WSS037	3
Jul	WSS038	2
Jul	WSS060	2
Jul	WSS062	8
Jul	WSS104	2
Jul	WSS105	3
Sep	WSS029	1
Sep	WSS035	8
Sep	WSS100	1
Sep	WSS105	1
Oct	WSS027	2
Oct	WSS029	1
Oct	WSS031	3

month	Detector ID	No. of Survey Nights
Oct	WSS033	9
Oct	WSS035	1
Oct	WSS053	2
Oct	WSS056	4
Oct	WSS059	3
Oct	WSS061	3
Oct	WSS063	5
Oct	WSS076	2
Oct	WSS097	2
Oct	WSS100	1
Oct	WSS101	2
Oct	WSS104	2
Oct	WSS105	1
Oct	WSS106	3

Nightly Bat Passes for Each Month

Median Per Detector

Table 20. The median Nightly Pass Rate (bat passes per hour, per night) of each species throughout each month. If NA, then no bat passes.

Bat pass rates are often highly variable between nights, with some nights having few or no passes and other nights having high activity. In these circumstances, the median is likely to be a more useful summary of the 'average' activity than is the mean. For further information see: Lintott, P. R., & Mathews, F. (2018). Basic mathematical errors may make ecological assessments unreliable. Biodiversity and Conservation, 27(1), 265-267. https://doi.org/10.1007/s10531-017-1418-5

Species	Detector ID	May	Jun	Jul	Sep	Oct
Common pipistrelle	WSS029	NA	0.4	NA	NA	1.9
Common pipistrelle	WSS031	NA	NA	NA	NA	0.3
Common pipistrelle	WSS033	NA	NA	NA	NA	0.2
Common pipistrelle	WSS034	NA	NA	0.1	NA	NA
Common pipistrelle	WSS035	NA	NA	4.1	0.2	0.2
Common pipistrelle	WSS036	NA	0.1	NA	NA	NA
Common pipistrelle	WSS037	NA	NA	0.4	NA	NA
Common pipistrelle	WSS038	NA	NA	0.2	NA	NA
Common pipistrelle	WSS053	NA	NA	NA	NA	0.4
Common pipistrelle	WSS056	NA	0.1	NA	NA	0.1
Common pipistrelle	WSS058	NA	0.1	NA	NA	NA
Common pipistrelle	WSS059	NA	0.6	NA	NA	0.4
Common pipistrelle	WSS061	NA	NA	NA	NA	0.1
Common pipistrelle	WSS062	NA	NA	0.1	NA	NA
Common pipistrelle	WSS063	NA	NA	NA	NA	0.1
Common pipistrelle	WSS073	NA	0.3	NA	NA	NA
Common pipistrelle	WSS076	NA	NA	NA	NA	0.1
Common pipistrelle	WSS097	NA	NA	NA	NA	0.1
Common pipistrelle	WSS104	NA	NA	0.3	NA	0.2
Common pipistrelle	WSS105	NA	NA	0.8	NA	NA
Common pipistrelle	WSS106	NA	NA	NA	NA	0.1
Soprano pipistrelle	WSS026	0.8	NA	NA	NA	NA
Soprano pipistrelle	WSS027	NA	NA	NA	NA	0.8
Soprano pipistrelle	WSS029	NA	3.1	NA	2.8	2.7
Soprano pipistrelle	WSS031	NA	NA	NA	NA	19.1
Soprano pipistrelle	WSS033	25.6	NA	NA	NA	27.3
Soprano pipistrelle	WSS034	NA	13.3	12.4	NA	NA
Soprano pipistrelle	WSS035	NA	NA	13.6	20.2	18.4
Soprano pipistrelle	WSS036	NA	1.8	NA	NA	NA
Soprano pipistrelle	WSS037	NA	NA	3.3	NA	NA
Soprano pipistrelle	WSS038	NA	NA	2.4	NA	NA
Soprano pipistrelle	WSS053	NA	NA	NA	NA	9.8
Soprano pipistrelle	WSS056	6.2	21.2	NA	NA	22.4
Soprano pipistrelle	WSS058	NA	12.1	NA	NA	NA
Soprano pipistrelle	WSS059	NA	5.7	NA	NA	0.2
Soprano pipistrelle	WSS060	NA	NA	31.9	NA	NA

Species	Detector ID	May	Jun	Jul	Sep	Oct
Soprano pipistrelle	WSS061	NA	NA	NA	NA	13.0
Soprano pipistrelle	WSS062	NA	NA	14.7	NA	NA
Soprano pipistrelle	WSS063	NA	NA	NA	NA	28.5
Soprano pipistrelle	WSS064	NA	2.7	NA	NA	NA
Soprano pipistrelle	WSS071	NA	4.0	NA	NA	NA
Soprano pipistrelle	WSS073	NA	7.6	NA	NA	NA
Soprano pipistrelle	WSS074	NA	2.0	NA	NA	NA
Soprano pipistrelle	WSS076	NA	NA	NA	NA	13.0
Soprano pipistrelle	WSS077	NA	0.9	NA	NA	NA
Soprano pipistrelle	WSS097	NA	NA	NA	NA	0.9
Soprano pipistrelle	WSS100	NA	14.8	NA	18.5	18.4
Soprano pipistrelle	WSS101	NA	NA	NA	NA	1.1
Soprano pipistrelle	WSS103	NA	4.8	NA	NA	NA
Soprano pipistrelle	WSS104	NA	NA	20.0	NA	0.4
Soprano pipistrelle	WSS105	NA	18.3	11.7	2.2	2.2
Soprano pipistrelle	WSS106	NA	NA	NA	NA	14.7
Leisler's	WSS027	NA	NA	NA	NA	0.2
Leisler's	WSS029	NA	NA	NA	NA	0.4
Leisler's	WSS034	NA	NA	2.0	NA	NA
Leisler's	WSS035	NA	NA	0.4	NA	0.1
Leisler's	WSS038	NA	NA	0.5	NA	NA
Leisler's	WSS056	NA	0.9	NA	NA	0.3
Leisler's	WSS058	NA	0.1	NA	NA	NA
Leisler's	WSS060	NA	NA	1.1	NA	NA
Leisler's	WSS062	NA	NA	0.8	NA	NA
Leisler's	WSS063	NA	NA	NA	NA	0.5
Leisler's	WSS073	NA	0.4	NA	NA	NA
Leisler's	WSS101	NA	NA	NA	NA	0.5
Leisler's	WSS103	NA	0.3	NA	NA	NA
Leisler's	WSS104	NA	NA	0.3	NA	NA
Leisler's	WSS105	NA	1.0	0.1	NA	NA
Leisler's	WSS106	NA	NA	NA	NA	0.1
Brown long-eared	WSS026	0.3	NA	NA	NA	NA
Brown long-eared	WSS027	NA	NA	NA	NA	0.5
Brown long-eared	WSS029	NA	0.3	NA	0.5	0.5
Brown long-eared	WSS031	NA	NA	NA	NA	0.2

Species	Detector ID	May	Jun	Jul	Sep	Oct
Brown long-eared	WSS033	NA	NA	NA	NA	0.2
Brown long-eared	WSS034	NA	0.1	NA	NA	NA
Brown long-eared	WSS037	NA	NA	0.2	NA	NA
Brown long-eared	WSS038	NA	NA	0.8	NA	NA
Brown long-eared	WSS053	NA	NA	NA	NA	0.1
Brown long-eared	WSS056	NA	0.1	NA	NA	NA
Brown long-eared	WSS059	NA	0.4	NA	NA	0.1
Brown long-eared	WSS060	NA	NA	0.4	NA	NA
Brown long-eared	WSS061	NA	NA	NA	NA	0.3
Brown long-eared	WSS063	NA	NA	NA	NA	0.9
Brown long-eared	WSS064	NA	0.1	NA	NA	NA
Brown long-eared	WSS076	NA	NA	NA	NA	0.3
Brown long-eared	WSS077	NA	0.1	NA	NA	NA
Brown long-eared	WSS097	NA	NA	NA	NA	0.3
Brown long-eared	WSS101	NA	NA	NA	NA	1.5
Brown long-eared	WSS103	NA	1.0	NA	NA	NA
Brown long-eared	WSS104	NA	NA	0.4	NA	NA
Brown long-eared	WSS105	NA	0.1	NA	NA	0.1
Brown long-eared	WSS106	NA	NA	NA	NA	0.1
Myotis	WSS026	0.5	NA	NA	NA	NA
Myotis	WSS027	NA	NA	NA	NA	0.1
Myotis	WSS029	NA	0.7	NA	0.3	0.3
Myotis	WSS031	NA	NA	NA	NA	2.5
Myotis	WSS033	1.0	NA	NA	NA	0.9
Myotis	WSS035	NA	NA	2.8	NA	NA
Myotis	WSS036	NA	1.0	NA	NA	NA
Myotis	WSS037	NA	NA	0.2	NA	NA
Myotis	WSS038	NA	NA	0.2	NA	NA
Myotis	WSS053	NA	NA	NA	NA	0.7
Myotis	WSS056	0.1	0.4	NA	NA	0.3
Myotis	WSS058	NA	0.3	NA	NA	NA
Myotis	WSS059	NA	4.1	NA	NA	0.4
Myotis	WSS061	NA	NA	NA	NA	5.0
Myotis	WSS062	NA	NA	0.9	NA	NA
Myotis	WSS063	NA	NA	NA	NA	1.2
Myotis	WSS071	NA	1.3	NA	NA	NA

Species	Detector ID	May	Jun	Jul	Sep	Oct
Myotis	WSS073	NA	2.6	NA	NA	NA
Myotis	WSS074	NA	1.1	NA	NA	NA
Myotis	WSS076	NA	NA	NA	NA	2.5
Myotis	WSS100	NA	0.2	NA	0.2	NA
Myotis	WSS101	NA	NA	NA	NA	0.1
Myotis	WSS103	NA	0.6	NA	NA	NA
Myotis	WSS104	NA	NA	1.4	NA	NA
Myotis	WSS105	NA	1.3	3.1	2.4	2.4
Myotis	WSS106	NA	NA	NA	NA	3.2

Mean Per Detector

Table 21: The mean Nightly Pass Rate (bat passes per hour, per night) of each species throughout each month. Values are given to 1 decimal place.

We recommend using the median values given above, for the reasons stated above, but provide the mean values in the table below.

Species	Detector ID	May	Jun	Jul	Sep	Oct
Common pipistrelle	WSS029	NA	0.4	NA	NA	1.9
Common pipistrelle	WSS031	NA	NA	NA	NA	0.3
Common pipistrelle	WSS033	NA	NA	NA	NA	0.2
Common pipistrelle	WSS034	NA	NA	0.1	NA	NA
Common pipistrelle	WSS035	NA	NA	4.1	0.2	0.2
Common pipistrelle	WSS036	NA	0.1	NA	NA	NA
Common pipistrelle	WSS037	NA	NA	0.4	NA	NA
Common pipistrelle	WSS038	NA	NA	0.2	NA	NA
Common pipistrelle	WSS053	NA	NA	NA	NA	0.4
Common pipistrelle	WSS056	NA	0.1	NA	NA	0.1
Common pipistrelle	WSS058	NA	0.1	NA	NA	NA
Common pipistrelle	WSS059	NA	0.6	NA	NA	0.4
Common pipistrelle	WSS061	NA	NA	NA	NA	0.1
Common pipistrelle	WSS062	NA	NA	0.1	NA	NA
Common pipistrelle	WSS063	NA	NA	NA	NA	0.1
Common pipistrelle	WSS073	NA	0.3	NA	NA	NA
Common pipistrelle	WSS076	NA	NA	NA	NA	0.1
Common pipistrelle	WSS097	NA	NA	NA	NA	0.1
Common pipistrelle	WSS104	NA	NA	0.3	NA	0.2
Common pipistrelle	WSS105	NA	NA	0.8	NA	NA
Common pipistrelle	WSS106	NA	NA	NA	NA	0.1
Soprano pipistrelle	WSS026	0.8	NA	NA	NA	NA
Soprano pipistrelle	WSS027	NA	NA	NA	NA	0.8
Soprano pipistrelle	WSS029	NA	3.1	NA	2.8	2.7
Soprano pipistrelle	WSS031	NA	NA	NA	NA	14.2
Soprano pipistrelle	WSS033	26.8	NA	NA	NA	44.5
Soprano pipistrelle	WSS034	NA	13.3	9.0	NA	NA
Soprano pipistrelle	WSS035	NA	NA	31.0	17.4	18.4
Soprano pipistrelle	WSS036	NA	1.8	NA	NA	NA
Soprano pipistrelle	WSS037	NA	NA	2.4	NA	NA

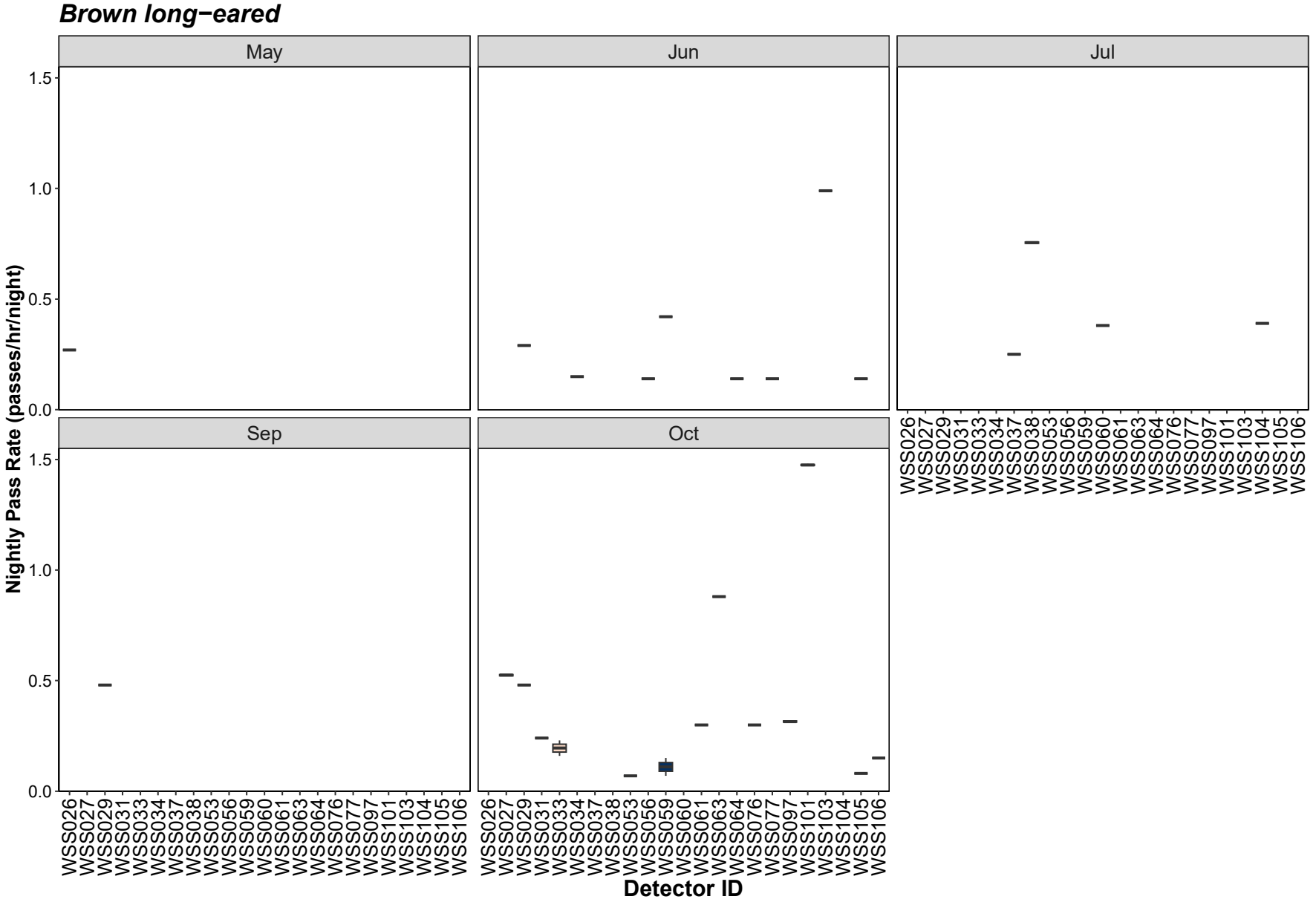
Species	Detector ID	May	Jun	Jul	Sep	Oct
Soprano pipistrelle	WSS038	NA	NA	2.4	NA	NA
Soprano pipistrelle	WSS053	NA	NA	NA	NA	9.8
Soprano pipistrelle	WSS056	6.2	18.2	NA	NA	20.1
Soprano pipistrelle	WSS058	NA	9.9	NA	NA	NA
Soprano pipistrelle	WSS059	NA	4.8	NA	NA	0.2
Soprano pipistrelle	WSS060	NA	NA	31.9	NA	NA
Soprano pipistrelle	WSS061	NA	NA	NA	NA	12.0
Soprano pipistrelle	WSS062	NA	NA	11.9	NA	NA
Soprano pipistrelle	WSS063	NA	NA	NA	NA	35.2
Soprano pipistrelle	WSS064	NA	2.7	NA	NA	NA
Soprano pipistrelle	WSS071	NA	4.0	NA	NA	NA
Soprano pipistrelle	WSS073	NA	10.6	NA	NA	NA
Soprano pipistrelle	WSS074	NA	2.0	NA	NA	NA
Soprano pipistrelle	WSS076	NA	NA	NA	NA	13.0
Soprano pipistrelle	WSS077	NA	1.1	NA	NA	NA
Soprano pipistrelle	WSS097	NA	NA	NA	NA	0.9
Soprano pipistrelle	WSS100	NA	13.2	NA	18.5	18.4
Soprano pipistrelle	WSS101	NA	NA	NA	NA	1.1
Soprano pipistrelle	WSS103	NA	4.8	NA	NA	NA
Soprano pipistrelle	WSS104	NA	NA	20.0	NA	0.4
Soprano pipistrelle	WSS105	NA	18.2	9.2	2.2	2.2
Soprano pipistrelle	WSS106	NA	NA	NA	NA	14.7
Leisler's	WSS027	NA	NA	NA	NA	0.2
Leisler's	WSS029	NA	NA	NA	NA	0.4
Leisler's	WSS034	NA	NA	2.0	NA	NA
Leisler's	WSS035	NA	NA	0.4	NA	0.1
Leisler's	WSS038	NA	NA	0.5	NA	NA
Leisler's	WSS056	NA	0.9	NA	NA	0.2
Leisler's	WSS058	NA	0.1	NA	NA	NA
Leisler's	WSS060	NA	NA	1.1	NA	NA
Leisler's	WSS062	NA	NA	0.8	NA	NA
Leisler's	WSS063	NA	NA	NA	NA	0.5
Leisler's	WSS073	NA	0.4	NA	NA	NA
Leisler's	WSS101	NA	NA	NA	NA	0.5
Leisler's	WSS103	NA	0.3	NA	NA	NA
Leisler's	WSS104	NA	NA	0.3	NA	NA

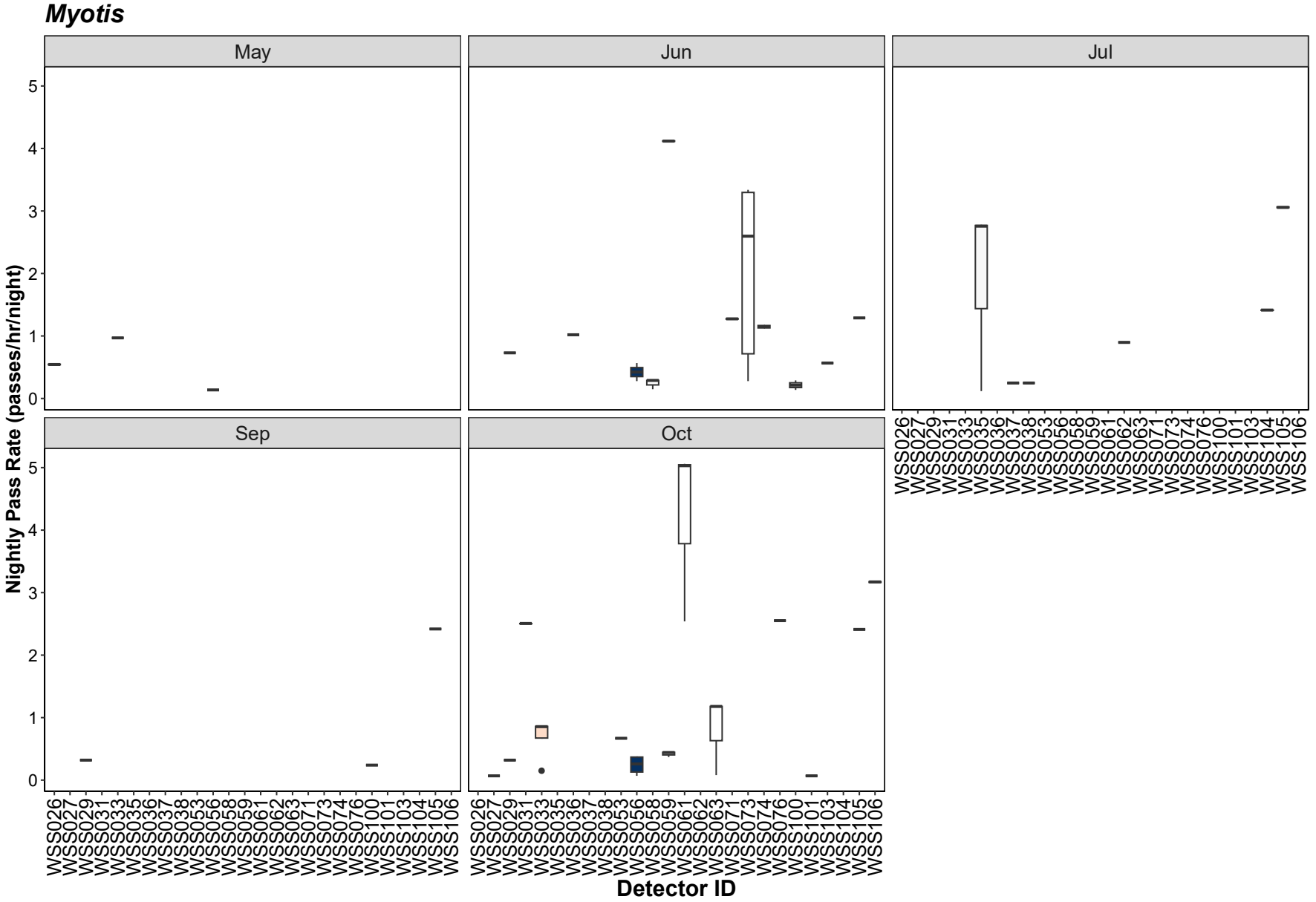
Species	Detector ID	May	Jun	Jul	Sep	Oct
Leisler's	WSS105	NA	1.0	0.1	NA	NA
Leisler's	WSS106	NA	NA	NA	NA	0.1
Brown long-eared	WSS026	0.3	NA	NA	NA	NA
Brown long-eared	WSS027	NA	NA	NA	NA	0.5
Brown long-eared	WSS029	NA	0.3	NA	0.5	0.5
Brown long-eared	WSS031	NA	NA	NA	NA	0.2
Brown long-eared	WSS033	NA	NA	NA	NA	0.2
Brown long-eared	WSS034	NA	0.1	NA	NA	NA
Brown long-eared	WSS037	NA	NA	0.2	NA	NA
Brown long-eared	WSS038	NA	NA	0.8	NA	NA
Brown long-eared	WSS053	NA	NA	NA	NA	0.1
Brown long-eared	WSS056	NA	0.1	NA	NA	NA
Brown long-eared	WSS059	NA	0.4	NA	NA	0.1
Brown long-eared	WSS060	NA	NA	0.4	NA	NA
Brown long-eared	WSS061	NA	NA	NA	NA	0.3
Brown long-eared	WSS063	NA	NA	NA	NA	0.9
Brown long-eared	WSS064	NA	0.1	NA	NA	NA
Brown long-eared	WSS076	NA	NA	NA	NA	0.3
Brown long-eared	WSS077	NA	0.1	NA	NA	NA
Brown long-eared	WSS097	NA	NA	NA	NA	0.3
Brown long-eared	WSS101	NA	NA	NA	NA	1.5
Brown long-eared	WSS103	NA	1.0	NA	NA	NA
Brown long-eared	WSS104	NA	NA	0.4	NA	NA
Brown long-eared	WSS105	NA	0.1	NA	NA	0.1
Brown long-eared	WSS106	NA	NA	NA	NA	0.1
Myotis	WSS026	0.5	NA	NA	NA	NA
Myotis	WSS027	NA	NA	NA	NA	0.1
Myotis	WSS029	NA	0.7	NA	0.3	0.3
Myotis	WSS031	NA	NA	NA	NA	2.5
Myotis	WSS033	1.0	NA	NA	NA	0.7
Myotis	WSS035	NA	NA	1.9	NA	NA
Myotis	WSS036	NA	1.0	NA	NA	NA
Myotis	WSS037	NA	NA	0.2	NA	NA
Myotis	WSS038	NA	NA	0.2	NA	NA
Myotis	WSS053	NA	NA	NA	NA	0.7
Myotis	WSS056	0.1	0.4	NA	NA	0.2

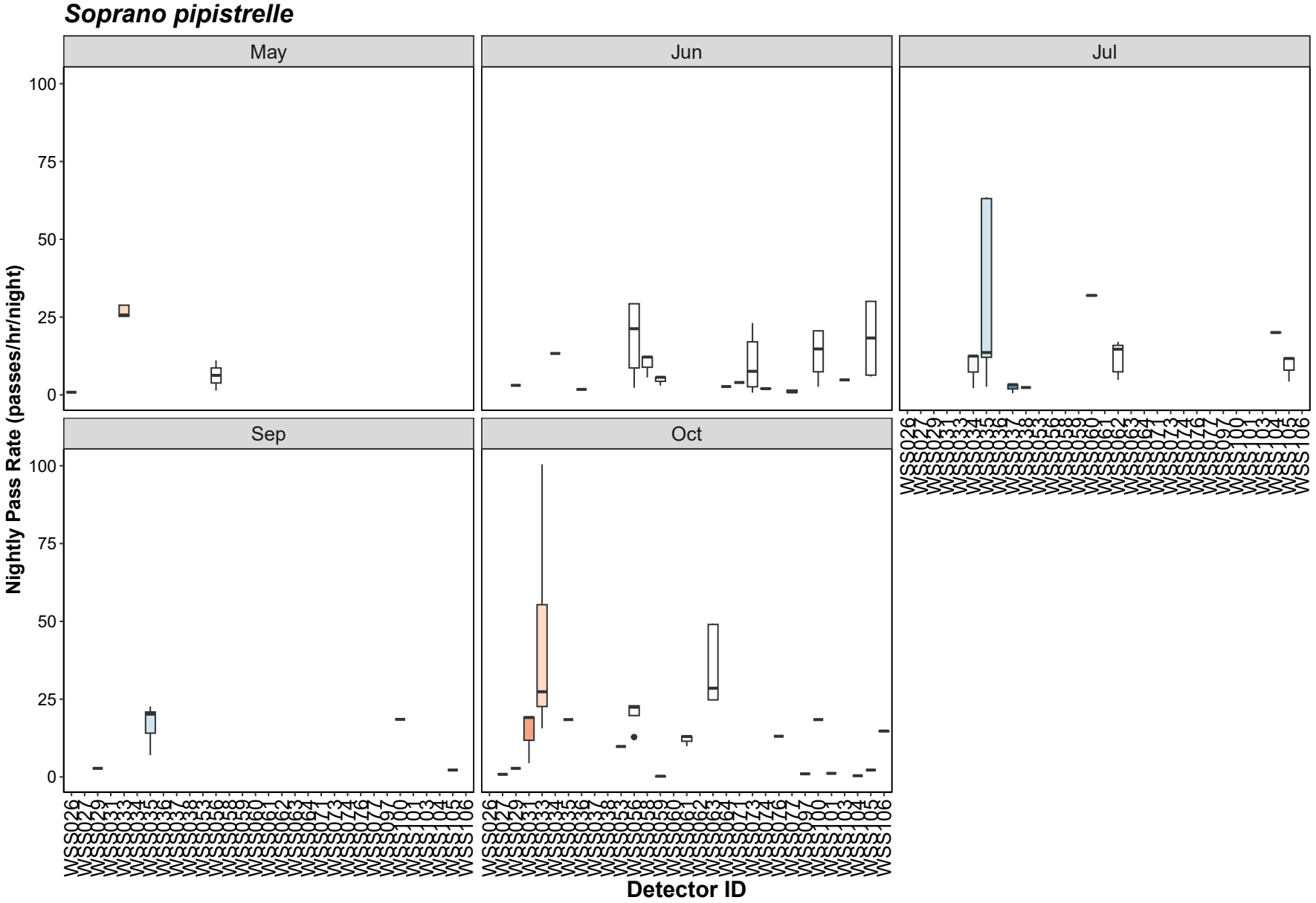
Species	Detector ID	May	Jun	Jul	Sep	Oct
Myotis	WSS058	NA	0.2	NA	NA	NA
Myotis	WSS059	NA	4.1	NA	NA	0.4
Myotis	WSS061	NA	NA	NA	NA	4.2
Myotis	WSS062	NA	NA	0.9	NA	NA
Myotis	WSS063	NA	NA	NA	NA	0.8
Myotis	WSS071	NA	1.3	NA	NA	NA
Myotis	WSS073	NA	2.1	NA	NA	NA
Myotis	WSS074	NA	1.1	NA	NA	NA
Myotis	WSS076	NA	NA	NA	NA	2.5
Myotis	WSS100	NA	0.2	NA	0.2	NA
Myotis	WSS101	NA	NA	NA	NA	0.1
Myotis	WSS103	NA	0.6	NA	NA	NA
Myotis	WSS104	NA	NA	1.4	NA	NA
Myotis	WSS105	NA	1.3	3.1	2.4	2.4
Myotis	WSS106	NA	NA	NA	NA	3.2

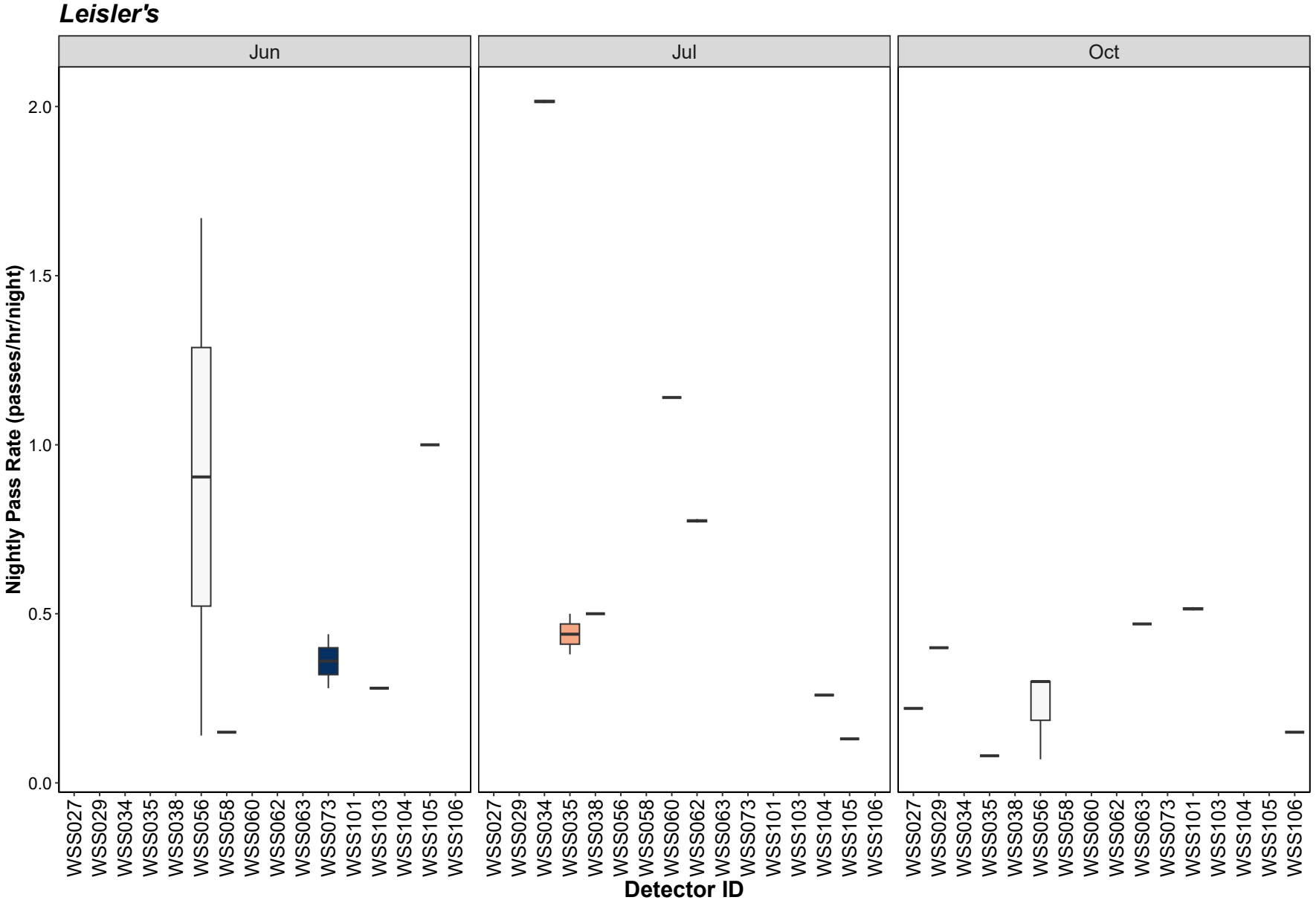
Per Detector

Figure 12. Figures show boxplots for the number of bat passes per hour by detector, for each month. The ‘box’ shows the interquartile range, which is where the middle 50% of the data lie. The line dividing the box is the median, the mid-point of the data. The ‘whiskers’ extend from the box and represent the ranges for the bottom 25% and the top 25% of the data values, excluding outliers. An outlier is any extreme value that lies further away from the box than 1.5 times the interquartile range. Outliers are shown as dots. Where very few passes are recorded it is not possible to produce the box, so the data are shown as a line.

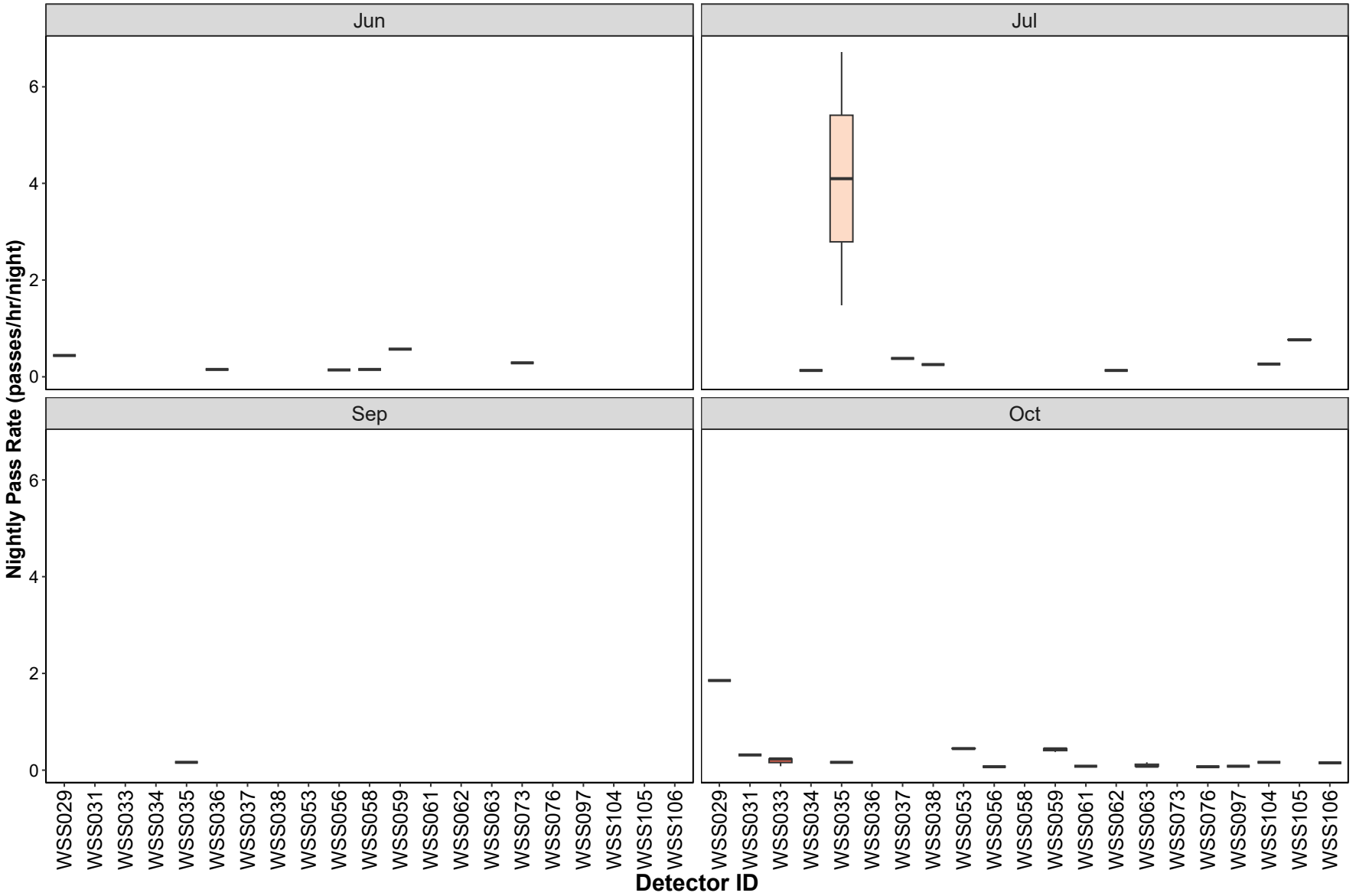

Brown long−eared
May
Jun
Jul
Sep
Oct
Nightly Pass Rate (passes/hr/night)
0.0
0.5
1.0
1.5
WSS026
WSS027
WSS029
WSS031
WSS033
WSS034
WSS037
WSS038
WSS053
WSS056
WSS059
WSS060
WSS061
WSS063
WSS064
WSS076
WSS077
WSS097
WSS101
WSS103
WSS104
WSS105
WSS106
Detector ID


Myotis
May
Jun
Jul
Sep
Oct
Nightly Pass Rate (passes/hr/night)
0
1
2
3
4
5
WSS026
WSS027
WSS029
WSS031
WSS033
WSS035
WSS036
WSS037
WSS038
WSS053
WSS056
WSS058
WSS059
WSS061
WSS062
WSS063
WSS071
WSS073
WSS074
WSS076
WSS100
WSS101
WSS103
WSS104
WSS105
WSS106
Detector ID


Soprano pipistrelle
May
Jun
Jul
Sep
Oct
Nightly Pass Rate (passes/hr/night)
0
25
50
75
100
Detector ID


Leisler's
Jun
Jul
Oct
Nightly Pass Rate (passes/hr/night)
0.0
0.5
1.0
1.5
2.0
WSS027
WSS029
WSS034
WSS035
WSS038
WSS056
WSS058
WSS060
WSS062
WSS063
WSS073
WSS101
WSS103
WSS104
WSS105
WSS106
Detector ID

Common pipistrelle



Bat Activity per Detector Location

Figure 13. Detector ID reference:

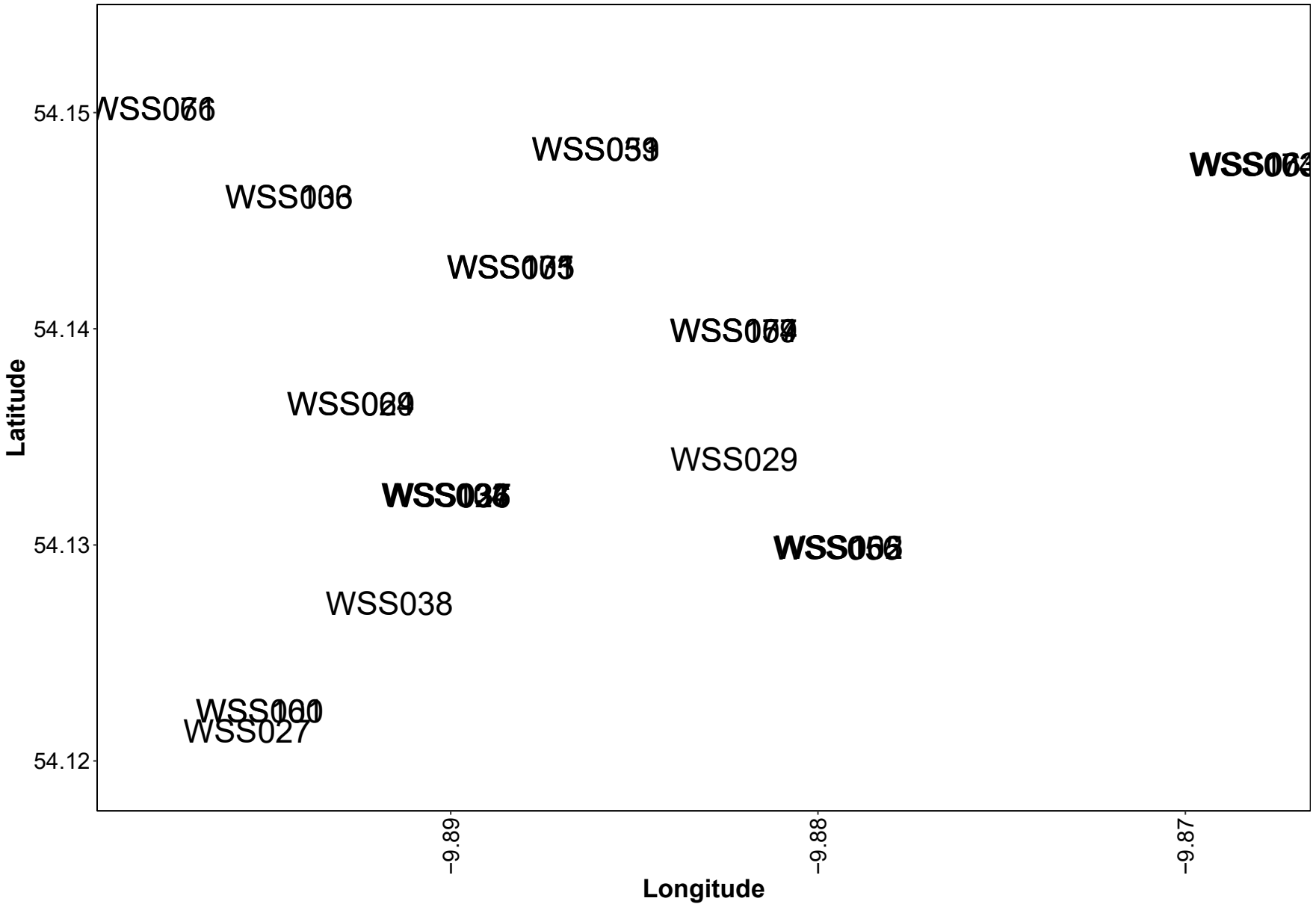

54.15
54.14
54.13
54.12
Latitude
WSS029
WSS038
WSS027
−9.89
−9.88
−9.87
Longitude

Figure 14. Median Nightly Pass Rate (bat passes/hr/night) throughout the survey period - represented by the size and colour of the point at each detector location.

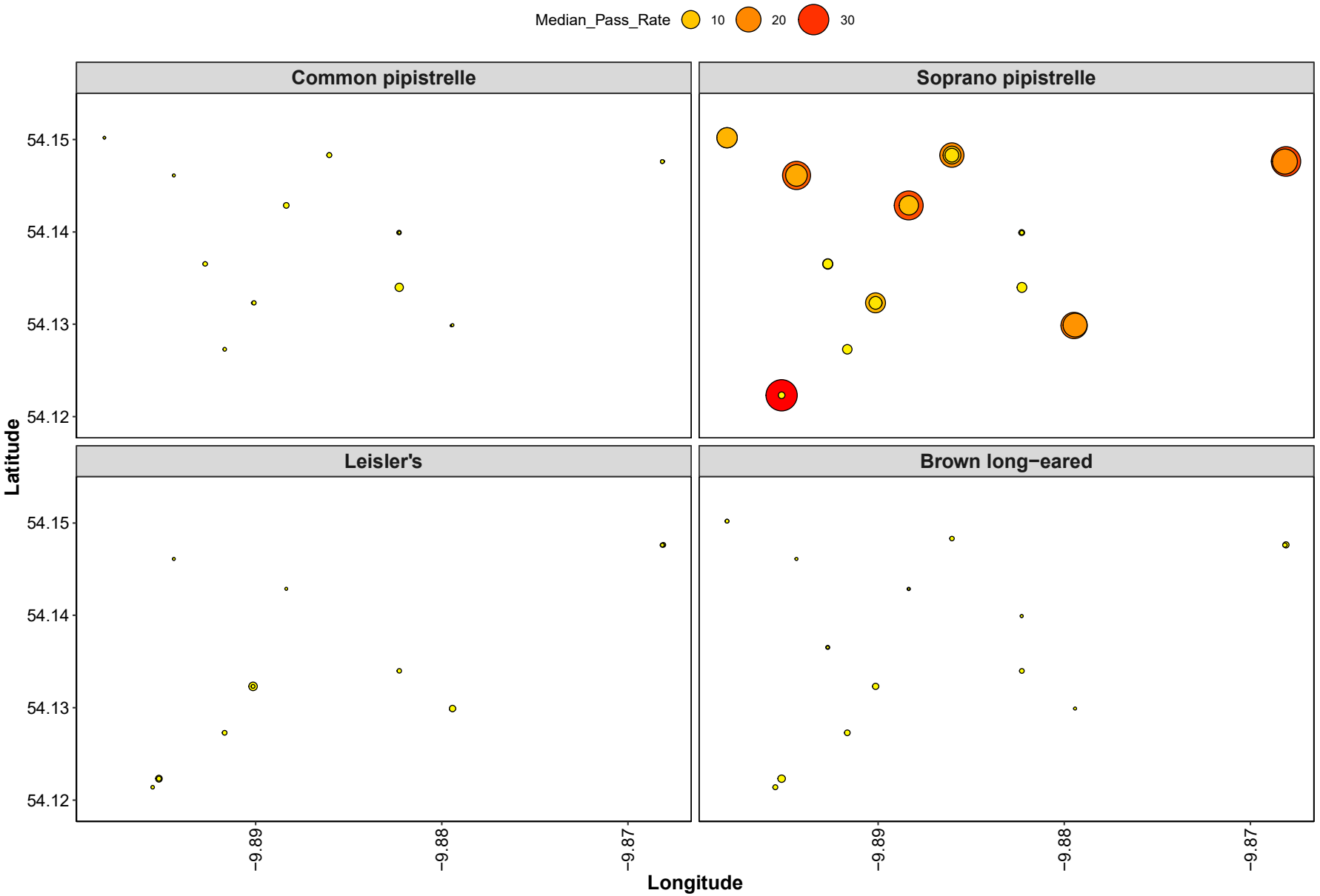
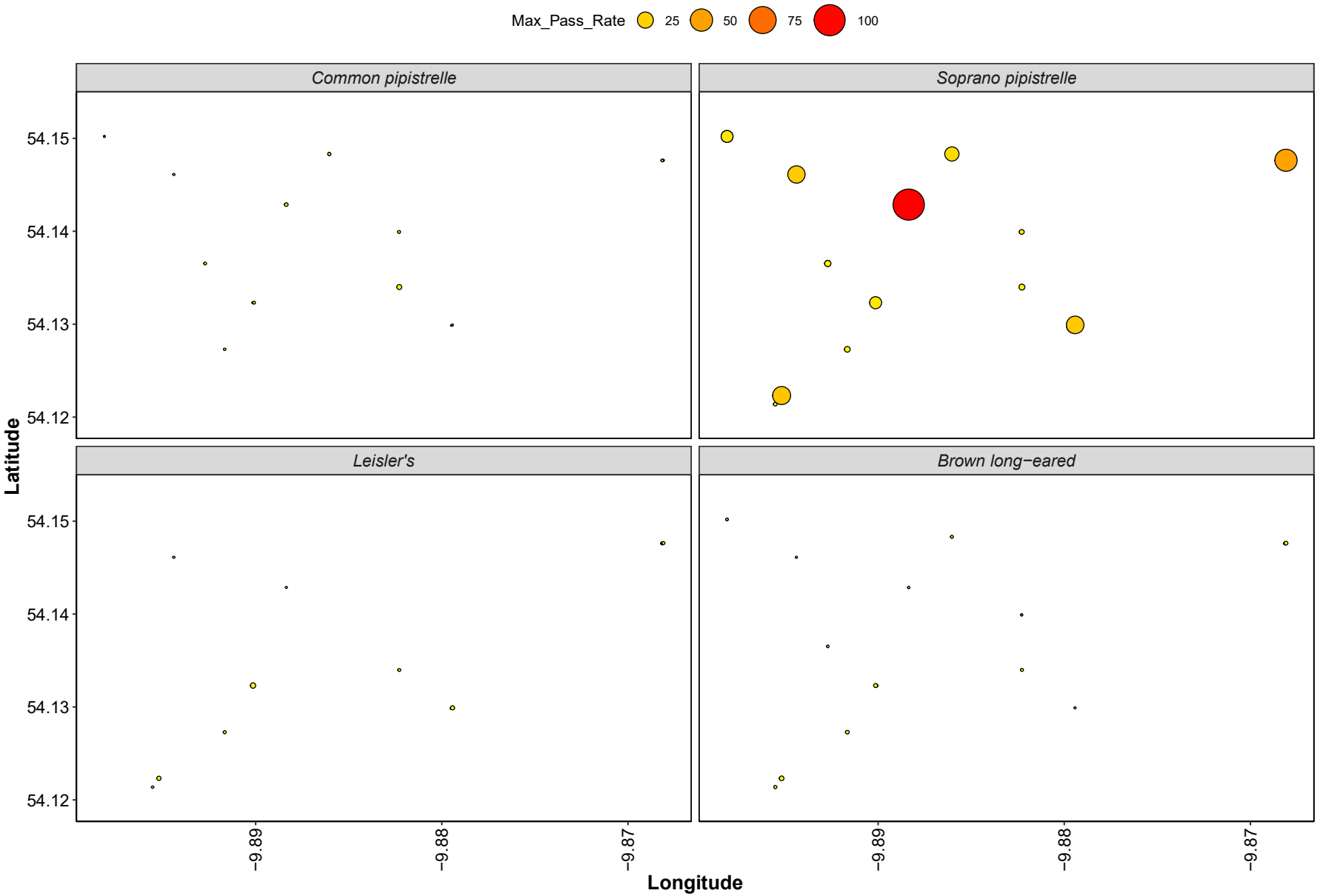

Median_Pass_Rate
10
20
30
Common pipistrelle
Soprano pipistrelle
Leisler's
Brown long−eared
Latitude
54.15
54.14
54.13
54.12
−9.89
−9.88
−9.87
Longitude

Figure 15. Maximum Nightly Pass Rate (bat passes/hr/night) recorded in a single night throughout the survey period - represented by the size and colour of the point at each detector location.


Max_Pass_Rate
25
50
75
100
Common pipistrelle
Soprano pipistrelle
Leisler's
Brown long−eared
Latitude
54.15
54.14
54.13
54.12
−9.89
−9.88
−9.87
Longitude

Part 2b: Includes Absences

THE NEXT SECTION OF THE REPORT FEATURES THE DATA SUPPLIED TO ECOBAT BUT TAKES INTO ACCOUNT SPECIES ABSENCES, AND THEREFORE INCLUDES 'ZERO DATA' FOR WHEN SPECIES WERE NOT DETECTED AT EACH DETECTOR ON A NIGHT. THIS DRAMATICALLY LOWERS THE MEANS AND MEDIANS OF THE DATA PRESENTED.

Nightly Bat Pass Rate

Median per Detector

Table 22. The median Nightly Pass Rate (bat passes per hour, per night) of each species. If NA, then no bat passes.

Bat pass rates are often highly variable between nights, with some nights having few or no passes and other nights having high activity. In these circumstances, the median is likely to be a more useful summary of the 'average' activity than is the mean. For further information see: Lintott, P. R., & Mathews, F. (2018). Basic mathematical errors may make ecological assessments unreliable. Biodiversity and Conservation, 27(1), 265-267. https://doi.org/10.1007/s10531-017-1418-5

Species	Detector ID	Median Pass Rate
Brown long-eared	WSS026	0.1
Brown long-eared	WSS027	0.5
Brown long-eared	WSS029	0.4
Brown long-eared	WSS031	0.2
Brown long-eared	WSS033	0.0
Brown long-eared	WSS034	0.0
Brown long-eared	WSS035	0.0
Brown long-eared	WSS036	0.0
Brown long-eared	WSS037	0.0
Brown long-eared	WSS038	0.8
Brown long-eared	WSS053	0.0
Brown long-eared	WSS056	0.0
Brown long-eared	WSS058	0.0
Brown long-eared	WSS059	0.0
Brown long-eared	WSS060	0.4
Brown long-eared	WSS061	0.3
Brown long-eared	WSS062	0.0
Brown long-eared	WSS063	0.0
Brown long-eared	WSS064	0.1
Brown long-eared	WSS071	0.0
Brown long-eared	WSS073	0.0
Brown long-eared	WSS074	0.0
Brown long-eared	WSS076	0.1
Brown long-eared	WSS077	0.0
Brown long-eared	WSS097	0.3
Brown long-eared	WSS100	0.0
Brown long-eared	WSS101	1.5
Brown long-eared	WSS103	0.5
Brown long-eared	WSS104	0.0
Brown long-eared	WSS105	0.0
Brown long-eared	WSS106	0.1
Common pipistrelle	WSS026	0.0
Common pipistrelle	WSS027	0.0
Common pipistrelle	WSS029	0.4
Common pipistrelle	WSS031	0.0
Common pipistrelle	WSS033	0.0

Species	Detector ID	Median Pass Rate
Common pipistrelle	WSS034	0.0
Common pipistrelle	WSS035	0.0
Common pipistrelle	WSS036	0.1
Common pipistrelle	WSS037	0.0
Common pipistrelle	WSS038	0.1
Common pipistrelle	WSS053	0.4
Common pipistrelle	WSS056	0.1
Common pipistrelle	WSS058	0.0
Common pipistrelle	WSS059	0.4
Common pipistrelle	WSS060	0.0
Common pipistrelle	WSS061	0.0
Common pipistrelle	WSS062	0.0
Common pipistrelle	WSS063	0.1
Common pipistrelle	WSS064	0.0
Common pipistrelle	WSS071	0.0
Common pipistrelle	WSS073	0.0
Common pipistrelle	WSS074	0.0
Common pipistrelle	WSS076	0.0
Common pipistrelle	WSS077	0.0
Common pipistrelle	WSS097	0.0
Common pipistrelle	WSS100	0.0
Common pipistrelle	WSS101	0.0
Common pipistrelle	WSS103	0.0
Common pipistrelle	WSS104	0.2
Common pipistrelle	WSS105	0.0
Common pipistrelle	WSS106	0.1
Leisler's	WSS026	0.0
Leisler's	WSS027	0.1
Leisler's	WSS029	0.0
Leisler's	WSS031	0.0
Leisler's	WSS033	0.0
Leisler's	WSS034	0.0
Leisler's	WSS035	0.0
Leisler's	WSS036	0.0
Leisler's	WSS037	0.0
Leisler's	WSS038	0.2

Species	Detector ID	Median Pass Rate
Leisler's	WSS053	0.0
Leisler's	WSS056	0.0
Leisler's	WSS058	0.0
Leisler's	WSS059	0.0
Leisler's	WSS060	1.1
Leisler's	WSS061	0.0
Leisler's	WSS062	0.0
Leisler's	WSS063	0.0
Leisler's	WSS064	0.0
Leisler's	WSS071	0.0
Leisler's	WSS073	0.0
Leisler's	WSS074	0.0
Leisler's	WSS076	0.0
Leisler's	WSS077	0.0
Leisler's	WSS097	0.0
Leisler's	WSS100	0.0
Leisler's	WSS101	0.5
Leisler's	WSS103	0.3
Leisler's	WSS104	0.1
Leisler's	WSS105	0.0
Leisler's	WSS106	0.0
Myotis	WSS026	0.5
Myotis	WSS027	0.0
Myotis	WSS029	0.5
Myotis	WSS031	2.5
Myotis	WSS033	0.0
Myotis	WSS034	0.0
Myotis	WSS035	0.0
Myotis	WSS036	1.0
Myotis	WSS037	0.2
Myotis	WSS038	0.1
Myotis	WSS053	0.7
Myotis	WSS056	0.1
Myotis	WSS058	0.3
Myotis	WSS059	0.4
Myotis	WSS060	0.0

Species	Detector ID	Median Pass Rate
Myotis	WSS061	5.0
Myotis	WSS062	0.0
Myotis	WSS063	0.1
Myotis	WSS064	0.0
Myotis	WSS071	1.3
Myotis	WSS073	0.3
Myotis	WSS074	1.1
Myotis	WSS076	1.3
Myotis	WSS077	0.0
Myotis	WSS097	0.0
Myotis	WSS100	0.1
Myotis	WSS101	0.0
Myotis	WSS103	0.6
Myotis	WSS104	0.7
Myotis	WSS105	1.3
Myotis	WSS106	3.2
Soprano pipistrelle	WSS026	0.8
Soprano pipistrelle	WSS027	0.8
Soprano pipistrelle	WSS029	2.9
Soprano pipistrelle	WSS031	19.1
Soprano pipistrelle	WSS033	26.5
Soprano pipistrelle	WSS034	12.5
Soprano pipistrelle	WSS035	18.4
Soprano pipistrelle	WSS036	1.8
Soprano pipistrelle	WSS037	3.3
Soprano pipistrelle	WSS038	2.4
Soprano pipistrelle	WSS053	9.8
Soprano pipistrelle	WSS056	21.2
Soprano pipistrelle	WSS058	12.1
Soprano pipistrelle	WSS059	1.6
Soprano pipistrelle	WSS060	31.9
Soprano pipistrelle	WSS061	13.0
Soprano pipistrelle	WSS062	11.1
Soprano pipistrelle	WSS063	28.5
Soprano pipistrelle	WSS064	2.7
Soprano pipistrelle	WSS071	4.0

Species	Detector ID	Median Pass Rate
Soprano pipistrelle	WSS073	5.3
Soprano pipistrelle	WSS074	2.0
Soprano pipistrelle	WSS076	13.0
Soprano pipistrelle	WSS077	0.9
Soprano pipistrelle	WSS097	0.9
Soprano pipistrelle	WSS100	18.4
Soprano pipistrelle	WSS101	1.1
Soprano pipistrelle	WSS103	4.8
Soprano pipistrelle	WSS104	10.2
Soprano pipistrelle	WSS105	6.5
Soprano pipistrelle	WSS106	14.7

Mean per Detector

Table 23. The mean Nightly Pass Rate (bat passes per hour, per night) of each species at each detector. Values are given to 1 decimal place.

We recommend using the median values given above, for the reasons stated above, but provide the mean values in the table below.

Species	Detector ID	Mean Pass Rate
Brown long-eared	WSS026	0.1
Brown long-eared	WSS027	0.5
Brown long-eared	WSS029	0.3
Brown long-eared	WSS031	0.2
Brown long-eared	WSS033	0.0
Brown long-eared	WSS034	0.0
Brown long-eared	WSS035	0.0
Brown long-eared	WSS036	0.0
Brown long-eared	WSS037	0.1
Brown long-eared	WSS038	0.8
Brown long-eared	WSS053	0.0
Brown long-eared	WSS056	0.0
Brown long-eared	WSS058	0.0
Brown long-eared	WSS059	0.1
Brown long-eared	WSS060	0.4
Brown long-eared	WSS061	0.2
Brown long-eared	WSS062	0.0
Brown long-eared	WSS063	0.4
Brown long-eared	WSS064	0.1
Brown long-eared	WSS071	0.0
Brown long-eared	WSS073	0.0
Brown long-eared	WSS074	0.0
Brown long-eared	WSS076	0.1
Brown long-eared	WSS077	0.1
Brown long-eared	WSS097	0.3
Brown long-eared	WSS100	0.0
Brown long-eared	WSS101	1.5
Brown long-eared	WSS103	0.5
Brown long-eared	WSS104	0.1
Brown long-eared	WSS105	0.0
Brown long-eared	WSS106	0.1
Common pipistrelle	WSS026	0.0
Common pipistrelle	WSS027	0.0
Common pipistrelle	WSS029	0.7
Common pipistrelle	WSS031	0.1
Common pipistrelle	WSS033	0.0

Species	Detector ID	Mean Pass Rate
Common pipistrelle	WSS034	0.0
Common pipistrelle	WSS035	0.6
Common pipistrelle	WSS036	0.1
Common pipistrelle	WSS037	0.1
Common pipistrelle	WSS038	0.1
Common pipistrelle	WSS053	0.4
Common pipistrelle	WSS056	0.1
Common pipistrelle	WSS058	0.0
Common pipistrelle	WSS059	0.4
Common pipistrelle	WSS060	0.0
Common pipistrelle	WSS061	0.0
Common pipistrelle	WSS062	0.0
Common pipistrelle	WSS063	0.1
Common pipistrelle	WSS064	0.0
Common pipistrelle	WSS071	0.0
Common pipistrelle	WSS073	0.0
Common pipistrelle	WSS074	0.0
Common pipistrelle	WSS076	0.0
Common pipistrelle	WSS077	0.0
Common pipistrelle	WSS097	0.0
Common pipistrelle	WSS100	0.0
Common pipistrelle	WSS101	0.0
Common pipistrelle	WSS103	0.0
Common pipistrelle	WSS104	0.2
Common pipistrelle	WSS105	0.2
Common pipistrelle	WSS106	0.1
Leisler's	WSS026	0.0
Leisler's	WSS027	0.1
Leisler's	WSS029	0.1
Leisler's	WSS031	0.0
Leisler's	WSS033	0.0
Leisler's	WSS034	0.8
Leisler's	WSS035	0.1
Leisler's	WSS036	0.0
Leisler's	WSS037	0.0
Leisler's	WSS038	0.2

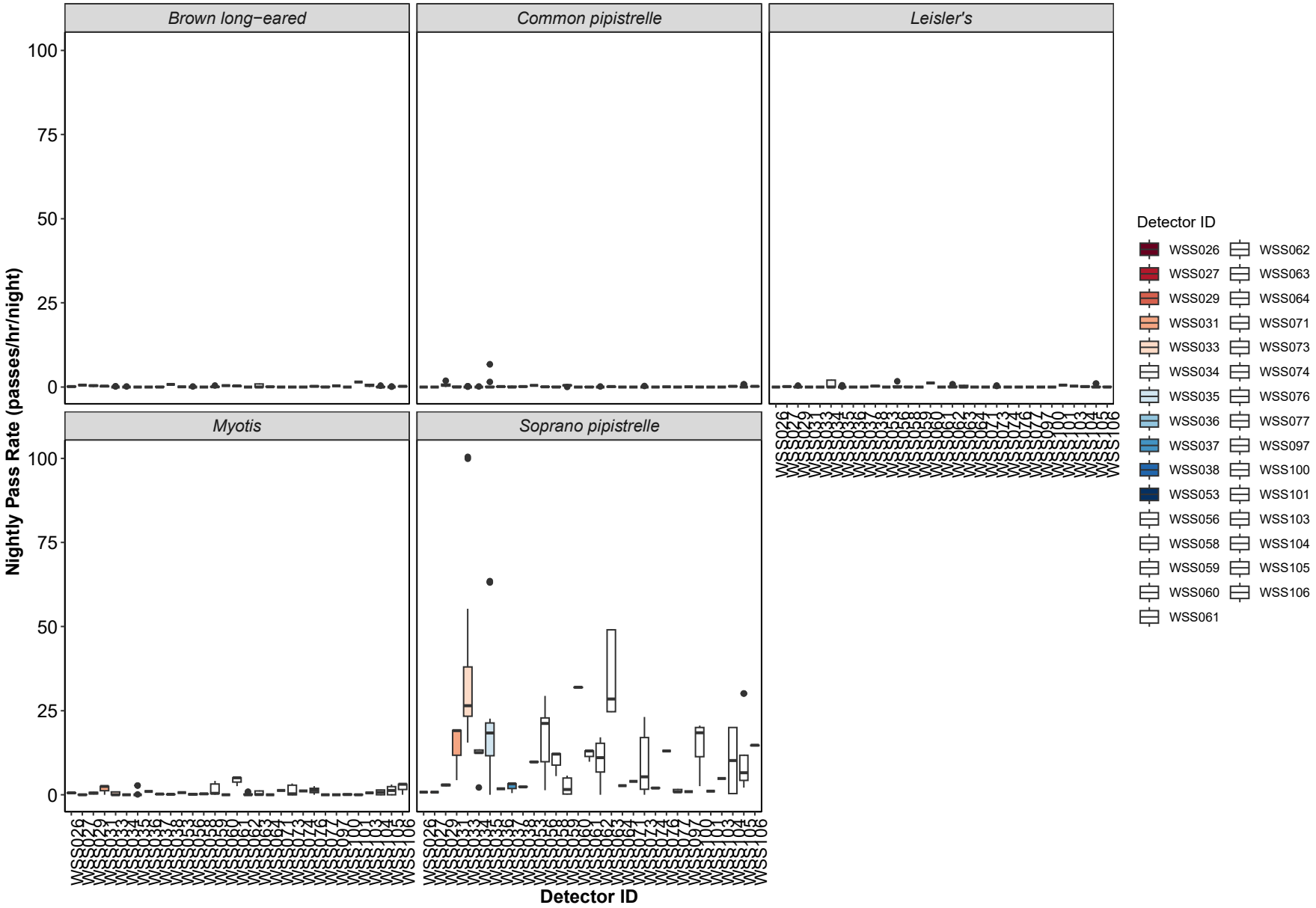
Species	Detector ID	Mean Pass Rate
Leisler's	WSS053	0.0
Leisler's	WSS056	0.2
Leisler's	WSS058	0.0
Leisler's	WSS059	0.0
Leisler's	WSS060	1.1
Leisler's	WSS061	0.0
Leisler's	WSS062	0.2
Leisler's	WSS063	0.2
Leisler's	WSS064	0.0
Leisler's	WSS071	0.0
Leisler's	WSS073	0.1
Leisler's	WSS074	0.0
Leisler's	WSS076	0.0
Leisler's	WSS077	0.0
Leisler's	WSS097	0.0
Leisler's	WSS100	0.0
Leisler's	WSS101	0.5
Leisler's	WSS103	0.3
Leisler's	WSS104	0.1
Leisler's	WSS105	0.2
Leisler's	WSS106	0.0
Myotis	WSS026	0.5
Myotis	WSS027	0.0
Myotis	WSS029	0.5
Myotis	WSS031	1.7
Myotis	WSS033	0.3
Myotis	WSS034	0.0
Myotis	WSS035	0.4
Myotis	WSS036	1.0
Myotis	WSS037	0.2
Myotis	WSS038	0.1
Myotis	WSS053	0.7
Myotis	WSS056	0.2
Myotis	WSS058	0.2
Myotis	WSS059	1.6
Myotis	WSS060	0.0

Species	Detector ID	Mean Pass Rate
Myotis	WSS061	4.2
Myotis	WSS062	0.2
Myotis	WSS063	0.5
Myotis	WSS064	0.0
Myotis	WSS071	1.3
Myotis	WSS073	1.2
Myotis	WSS074	1.1
Myotis	WSS076	1.3
Myotis	WSS077	0.0
Myotis	WSS097	0.0
Myotis	WSS100	0.1
Myotis	WSS101	0.0
Myotis	WSS103	0.6
Myotis	WSS104	0.7
Myotis	WSS105	1.4
Myotis	WSS106	2.1
Soprano pipistrelle	WSS026	0.8
Soprano pipistrelle	WSS027	0.8
Soprano pipistrelle	WSS029	2.9
Soprano pipistrelle	WSS031	14.2
Soprano pipistrelle	WSS033	38.2
Soprano pipistrelle	WSS034	10.8
Soprano pipistrelle	WSS035	20.8
Soprano pipistrelle	WSS036	1.8
Soprano pipistrelle	WSS037	2.4
Soprano pipistrelle	WSS038	2.4
Soprano pipistrelle	WSS053	9.8
Soprano pipistrelle	WSS056	16.7
Soprano pipistrelle	WSS058	9.9
Soprano pipistrelle	WSS059	2.5
Soprano pipistrelle	WSS060	31.9
Soprano pipistrelle	WSS061	12.0
Soprano pipistrelle	WSS062	10.4
Soprano pipistrelle	WSS063	35.2
Soprano pipistrelle	WSS064	2.7
Soprano pipistrelle	WSS071	4.0

Species	Detector ID	Mean Pass Rate
Soprano pipistrelle	WSS073	9.5
Soprano pipistrelle	WSS074	2.0
Soprano pipistrelle	WSS076	13.0
Soprano pipistrelle	WSS077	1.1
Soprano pipistrelle	WSS097	0.9
Soprano pipistrelle	WSS100	14.9
Soprano pipistrelle	WSS101	1.1
Soprano pipistrelle	WSS103	4.8
Soprano pipistrelle	WSS104	10.2
Soprano pipistrelle	WSS105	11.6
Soprano pipistrelle	WSS106	14.7

Per Detector

Figure 16. Figures show boxplots for the number of bat passes per hour each night, for each detector. The ‘box’ shows the interquartile range, which is where the middle 50% of the data lie. The line dividing the box is the median, the mid-point of the data. The ‘whiskers’ extend from the box and represent the ranges for the bottom 25% and the top 25% of the data values, excluding outliers. An outlier is any extreme value that lies further away from the box than 1.5 times the interquartile range. Outliers are shown as dots. Where very few passes are recorded it is not possible to produce the box, so the data are shown as a line.


Brown long−eared
Common pipistrelle
Leisler's
Myotis
Soprano pipistrelle
Nightly Pass Rate (passes/hr/night)
100
75
50
25
0
Detector ID
Detector ID
WSS026
WSS027
WSS029
WSS031
WSS033
WSS034
WSS035
WSS036
WSS037
WSS038
WSS053
WSS056
WSS058
WSS059
WSS060
WSS061
WSS062
WSS063
WSS064
WSS071
WSS073
WSS074
WSS076
WSS077
WSS097
WSS100
WSS101
WSS103
WSS104
WSS105
WSS106

Survey Effort

Table 24. The number of nights bats were detected per month per detector.

month	Detector ID	No. of Survey Nights
May	WSS026	2
May	WSS033	5
May	WSS056	2
Jun	WSS029	2
Jun	WSS034	2
Jun	WSS036	2
Jun	WSS056	5
Jun	WSS058	3
Jun	WSS059	3
Jun	WSS064	2
Jun	WSS071	2
Jun	WSS073	10
Jun	WSS074	4
Jun	WSS077	5
Jun	WSS100	4
Jun	WSS103	2
Jun	WSS105	4
Jul	WSS034	3
Jul	WSS035	6
Jul	WSS037	3
Jul	WSS038	2
Jul	WSS060	2
Jul	WSS062	8
Jul	WSS104	2
Jul	WSS105	3
Sep	WSS029	1
Sep	WSS035	8
Sep	WSS100	1
Sep	WSS105	1
Oct	WSS027	2
Oct	WSS029	1
Oct	WSS031	3

month	Detector ID	No. of Survey Nights
Oct	WSS033	9
Oct	WSS035	1
Oct	WSS053	2
Oct	WSS056	4
Oct	WSS059	3
Oct	WSS061	3
Oct	WSS063	5
Oct	WSS076	2
Oct	WSS097	2
Oct	WSS100	1
Oct	WSS101	2
Oct	WSS104	2
Oct	WSS105	1
Oct	WSS106	3

Nighlty Bat Pass Rate for Each Month

Median per Detector

Table 25. The median Nightly Pass Rate (bat passes per hour, per night) of each species throughout each month. If NA, then no bat passes.

Bat pass rates are often highly variable between nights, with some nights having few or no passes and other nights having high activity. In these circumstances, the median is likely to be a more useful summary of the 'average' activity than is the mean. For further information see: Lintott, P. R., & Mathews, F. (2018). Basic mathematical errors may make ecological assessments unreliable. Biodiversity and Conservation, 27(1), 265-267. https://doi.org/10.1007/s10531-017-1418-5

Species	Detector ID	Jul	Jun	May	Oct	Sep
Brown long-eared	WSS026	NA	NA	0.1	NA	NA
Brown long-eared	WSS027	NA	NA	NA	0.5	NA
Brown long-eared	WSS029	NA	0.1	NA	0.5	0.5
Brown long-eared	WSS031	NA	NA	NA	0.2	NA
Brown long-eared	WSS033	NA	NA	0.0	0.0	NA
Brown long-eared	WSS034	0.0	0.1	NA	NA	NA
Brown long-eared	WSS035	0.0	NA	NA	0.0	0.0
Brown long-eared	WSS036	NA	0.0	NA	NA	NA
Brown long-eared	WSS037	0.0	NA	NA	NA	NA
Brown long-eared	WSS038	0.8	NA	NA	NA	NA
Brown long-eared	WSS053	NA	NA	NA	0.0	NA
Brown long-eared	WSS056	NA	0.0	0.0	0.0	NA
Brown long-eared	WSS058	NA	0.0	NA	NA	NA
Brown long-eared	WSS059	NA	0.0	NA	0.1	NA
Brown long-eared	WSS060	0.4	NA	NA	NA	NA
Brown long-eared	WSS061	NA	NA	NA	0.3	NA
Brown long-eared	WSS062	0.0	NA	NA	NA	NA
Brown long-eared	WSS063	NA	NA	NA	0.0	NA
Brown long-eared	WSS064	NA	0.1	NA	NA	NA
Brown long-eared	WSS071	NA	0.0	NA	NA	NA
Brown long-eared	WSS073	NA	0.0	NA	NA	NA
Brown long-eared	WSS074	NA	0.0	NA	NA	NA
Brown long-eared	WSS076	NA	NA	NA	0.1	NA
Brown long-eared	WSS077	NA	0.0	NA	NA	NA
Brown long-eared	WSS097	NA	NA	NA	0.3	NA
Brown long-eared	WSS100	NA	0.0	NA	0.0	0.0
Brown long-eared	WSS101	NA	NA	NA	1.5	NA
Brown long-eared	WSS103	NA	0.5	NA	NA	NA
Brown long-eared	WSS104	0.2	NA	NA	0.0	NA
Brown long-eared	WSS105	0.0	0.0	NA	0.1	0.0
Brown long-eared	WSS106	NA	NA	NA	0.1	NA
Common pipistrelle	WSS026	NA	NA	0.0	NA	NA
Common pipistrelle	WSS027	NA	NA	NA	0.0	NA
Common pipistrelle	WSS029	NA	0.4	NA	1.9	0.0
Common pipistrelle	WSS031	NA	NA	NA	0.0	NA
Common pipistrelle	WSS033	NA	NA	0.0	0.0	NA

Species	Detector ID	Jul	Jun	May	Oct	Sep
Common pipistrelle	WSS034	0.0	0.0	NA	NA	NA
Common pipistrelle	WSS035	0.0	NA	NA	0.2	0.0
Common pipistrelle	WSS036	NA	0.1	NA	NA	NA
Common pipistrelle	WSS037	0.0	NA	NA	NA	NA
Common pipistrelle	WSS038	0.1	NA	NA	NA	NA
Common pipistrelle	WSS053	NA	NA	NA	0.4	NA
Common pipistrelle	WSS056	NA	0.1	0.0	0.1	NA
Common pipistrelle	WSS058	NA	0.0	NA	NA	NA
Common pipistrelle	WSS059	NA	0.6	NA	0.4	NA
Common pipistrelle	WSS060	0.0	NA	NA	NA	NA
Common pipistrelle	WSS061	NA	NA	NA	0.0	NA
Common pipistrelle	WSS062	0.0	NA	NA	NA	NA
Common pipistrelle	WSS063	NA	NA	NA	0.1	NA
Common pipistrelle	WSS064	NA	0.0	NA	NA	NA
Common pipistrelle	WSS071	NA	0.0	NA	NA	NA
Common pipistrelle	WSS073	NA	0.0	NA	NA	NA
Common pipistrelle	WSS074	NA	0.0	NA	NA	NA
Common pipistrelle	WSS076	NA	NA	NA	0.0	NA
Common pipistrelle	WSS077	NA	0.0	NA	NA	NA
Common pipistrelle	WSS097	NA	NA	NA	0.0	NA
Common pipistrelle	WSS100	NA	0.0	NA	0.0	0.0
Common pipistrelle	WSS101	NA	NA	NA	0.0	NA
Common pipistrelle	WSS103	NA	0.0	NA	NA	NA
Common pipistrelle	WSS104	0.3	NA	NA	0.1	NA
Common pipistrelle	WSS105	0.8	0.0	NA	0.0	0.0
Common pipistrelle	WSS106	NA	NA	NA	0.1	NA
Leisler's	WSS026	NA	NA	0.0	NA	NA
Leisler's	WSS027	NA	NA	NA	0.1	NA
Leisler's	WSS029	NA	0.0	NA	0.4	0.0
Leisler's	WSS031	NA	NA	NA	0.0	NA
Leisler's	WSS033	NA	NA	0.0	0.0	NA
Leisler's	WSS034	2.0	0.0	NA	NA	NA
Leisler's	WSS035	0.0	NA	NA	0.1	0.0
Leisler's	WSS036	NA	0.0	NA	NA	NA
Leisler's	WSS037	0.0	NA	NA	NA	NA
Leisler's	WSS038	0.2	NA	NA	NA	NA

Species	Detector ID	Jul	Jun	May	Oct	Sep
Leisler's	WSS053	NA	NA	NA	0.0	NA
Leisler's	WSS056	NA	0.0	0.0	0.2	NA
Leisler's	WSS058	NA	0.0	NA	NA	NA
Leisler's	WSS059	NA	0.0	NA	0.0	NA
Leisler's	WSS060	1.1	NA	NA	NA	NA
Leisler's	WSS061	NA	NA	NA	0.0	NA
Leisler's	WSS062	0.0	NA	NA	NA	NA
Leisler's	WSS063	NA	NA	NA	0.0	NA
Leisler's	WSS064	NA	0.0	NA	NA	NA
Leisler's	WSS071	NA	0.0	NA	NA	NA
Leisler's	WSS073	NA	0.0	NA	NA	NA
Leisler's	WSS074	NA	0.0	NA	NA	NA
Leisler's	WSS076	NA	NA	NA	0.0	NA
Leisler's	WSS077	NA	0.0	NA	NA	NA
Leisler's	WSS097	NA	NA	NA	0.0	NA
Leisler's	WSS100	NA	0.0	NA	0.0	0.0
Leisler's	WSS101	NA	NA	NA	0.5	NA
Leisler's	WSS103	NA	0.3	NA	NA	NA
Leisler's	WSS104	0.3	NA	NA	0.0	NA
Leisler's	WSS105	0.0	0.5	NA	0.0	0.0
Leisler's	WSS106	NA	NA	NA	0.0	NA
Myotis	WSS026	NA	NA	0.5	NA	NA
Myotis	WSS027	NA	NA	NA	0.0	NA
Myotis	WSS029	NA	0.7	NA	0.3	0.3
Myotis	WSS031	NA	NA	NA	2.5	NA
Myotis	WSS033	NA	NA	0.0	0.0	NA
Myotis	WSS034	0.0	0.0	NA	NA	NA
Myotis	WSS035	0.1	NA	NA	0.0	0.0
Myotis	WSS036	NA	1.0	NA	NA	NA
Myotis	WSS037	0.2	NA	NA	NA	NA
Myotis	WSS038	0.1	NA	NA	NA	NA
Myotis	WSS053	NA	NA	NA	0.7	NA
Myotis	WSS056	NA	0.0	0.1	0.3	NA
Myotis	WSS058	NA	0.3	NA	NA	NA
Myotis	WSS059	NA	4.1	NA	0.4	NA
Myotis	WSS060	0.0	NA	NA	NA	NA

Species	Detector ID	Jul	Jun	May	Oct	Sep
Myotis	WSS061	NA	NA	NA	5.0	NA
Myotis	WSS062	0.0	NA	NA	NA	NA
Myotis	WSS063	NA	NA	NA	0.1	NA
Myotis	WSS064	NA	0.0	NA	NA	NA
Myotis	WSS071	NA	1.3	NA	NA	NA
Myotis	WSS073	NA	0.3	NA	NA	NA
Myotis	WSS074	NA	1.1	NA	NA	NA
Myotis	WSS076	NA	NA	NA	1.3	NA
Myotis	WSS077	NA	0.0	NA	NA	NA
Myotis	WSS097	NA	NA	NA	0.0	NA
Myotis	WSS100	NA	0.1	NA	0.0	0.2
Myotis	WSS101	NA	NA	NA	0.0	NA
Myotis	WSS103	NA	0.6	NA	NA	NA
Myotis	WSS104	1.4	NA	NA	0.0	NA
Myotis	WSS105	3.0	0.0	NA	2.4	2.4
Myotis	WSS106	NA	NA	NA	3.2	NA
Soprano pipistrelle	WSS026	NA	NA	0.8	NA	NA
Soprano pipistrelle	WSS027	NA	NA	NA	0.8	NA
Soprano pipistrelle	WSS029	NA	3.1	NA	2.7	2.8
Soprano pipistrelle	WSS031	NA	NA	NA	19.1	NA
Soprano pipistrelle	WSS033	NA	NA	25.6	27.3	NA
Soprano pipistrelle	WSS034	12.4	13.3	NA	NA	NA
Soprano pipistrelle	WSS035	12.9	NA	NA	18.4	20.2
Soprano pipistrelle	WSS036	NA	1.8	NA	NA	NA
Soprano pipistrelle	WSS037	3.3	NA	NA	NA	NA
Soprano pipistrelle	WSS038	2.4	NA	NA	NA	NA
Soprano pipistrelle	WSS053	NA	NA	NA	9.8	NA
Soprano pipistrelle	WSS056	NA	21.2	6.2	22.4	NA
Soprano pipistrelle	WSS058	NA	12.1	NA	NA	NA
Soprano pipistrelle	WSS059	NA	5.7	NA	0.2	NA
Soprano pipistrelle	WSS060	31.9	NA	NA	NA	NA
Soprano pipistrelle	WSS061	NA	NA	NA	13.0	NA
Soprano pipistrelle	WSS062	11.1	NA	NA	NA	NA
Soprano pipistrelle	WSS063	NA	NA	NA	28.5	NA
Soprano pipistrelle	WSS064	NA	2.7	NA	NA	NA
Soprano pipistrelle	WSS071	NA	4.0	NA	NA	NA

Species	Detector ID	Jul	Jun	May	Oct	Sep
Soprano pipistrelle	WSS073	NA	5.3	NA	NA	NA
Soprano pipistrelle	WSS074	NA	2.0	NA	NA	NA
Soprano pipistrelle	WSS076	NA	NA	NA	13.0	NA
Soprano pipistrelle	WSS077	NA	0.9	NA	NA	NA
Soprano pipistrelle	WSS097	NA	NA	NA	0.9	NA
Soprano pipistrelle	WSS100	NA	14.8	NA	18.4	18.5
Soprano pipistrelle	WSS101	NA	NA	NA	1.1	NA
Soprano pipistrelle	WSS103	NA	4.8	NA	NA	NA
Soprano pipistrelle	WSS104	20.0	NA	NA	0.4	NA
Soprano pipistrelle	WSS105	11.7	18.3	NA	2.2	2.2
Soprano pipistrelle	WSS106	NA	NA	NA	14.7	NA

Mean per Detector

Table 26. The mean Nightly Pass Rate (bat passes per hour, per night) of each species throughout each month. Values are given to 1 decimal place.

We recommend using the median values given above, for the reasons stated above, but provide the mean values in the table below.

Species	Detector ID	Jul	Jun	May	Oct	Sep
Brown long-eared	WSS026	NA	NA	0.1	NA	NA
Brown long-eared	WSS027	NA	NA	NA	0.5	NA
Brown long-eared	WSS029	NA	0.1	NA	0.5	0.5
Brown long-eared	WSS031	NA	NA	NA	0.2	NA
Brown long-eared	WSS033	NA	NA	0.0	0.0	NA
Brown long-eared	WSS034	0.0	0.1	NA	NA	NA
Brown long-eared	WSS035	0.0	NA	NA	0.0	0.0
Brown long-eared	WSS036	NA	0.0	NA	NA	NA
Brown long-eared	WSS037	0.1	NA	NA	NA	NA
Brown long-eared	WSS038	0.8	NA	NA	NA	NA
Brown long-eared	WSS053	NA	NA	NA	0.0	NA
Brown long-eared	WSS056	NA	0.0	0.0	0.0	NA
Brown long-eared	WSS058	NA	0.0	NA	NA	NA
Brown long-eared	WSS059	NA	0.1	NA	0.1	NA
Brown long-eared	WSS060	0.4	NA	NA	NA	NA
Brown long-eared	WSS061	NA	NA	NA	0.2	NA
Brown long-eared	WSS062	0.0	NA	NA	NA	NA
Brown long-eared	WSS063	NA	NA	NA	0.4	NA
Brown long-eared	WSS064	NA	0.1	NA	NA	NA
Brown long-eared	WSS071	NA	0.0	NA	NA	NA
Brown long-eared	WSS073	NA	0.0	NA	NA	NA
Brown long-eared	WSS074	NA	0.0	NA	NA	NA
Brown long-eared	WSS076	NA	NA	NA	0.1	NA
Brown long-eared	WSS077	NA	0.1	NA	NA	NA
Brown long-eared	WSS097	NA	NA	NA	0.3	NA
Brown long-eared	WSS100	NA	0.0	NA	0.0	0.0
Brown long-eared	WSS101	NA	NA	NA	1.5	NA
Brown long-eared	WSS103	NA	0.5	NA	NA	NA
Brown long-eared	WSS104	0.2	NA	NA	0.0	NA
Brown long-eared	WSS105	0.0	0.0	NA	0.1	0.0
Brown long-eared	WSS106	NA	NA	NA	0.1	NA
Common pipistrelle	WSS026	NA	NA	0.0	NA	NA
Common pipistrelle	WSS027	NA	NA	NA	0.0	NA
Common pipistrelle	WSS029	NA	0.4	NA	1.9	0.0
Common pipistrelle	WSS031	NA	NA	NA	0.1	NA
Common pipistrelle	WSS033	NA	NA	0.0	0.1	NA

Species	Detector ID	Jul	Jun	May	Oct	Sep
Common pipistrelle	WSS034	0.0	0.0	NA	NA	NA
Common pipistrelle	WSS035	1.4	NA	NA	0.2	0.0
Common pipistrelle	WSS036	NA	0.1	NA	NA	NA
Common pipistrelle	WSS037	0.1	NA	NA	NA	NA
Common pipistrelle	WSS038	0.1	NA	NA	NA	NA
Common pipistrelle	WSS053	NA	NA	NA	0.4	NA
Common pipistrelle	WSS056	NA	0.1	0.0	0.1	NA
Common pipistrelle	WSS058	NA	0.0	NA	NA	NA
Common pipistrelle	WSS059	NA	0.4	NA	0.4	NA
Common pipistrelle	WSS060	0.0	NA	NA	NA	NA
Common pipistrelle	WSS061	NA	NA	NA	0.0	NA
Common pipistrelle	WSS062	0.0	NA	NA	NA	NA
Common pipistrelle	WSS063	NA	NA	NA	0.1	NA
Common pipistrelle	WSS064	NA	0.0	NA	NA	NA
Common pipistrelle	WSS071	NA	0.0	NA	NA	NA
Common pipistrelle	WSS073	NA	0.0	NA	NA	NA
Common pipistrelle	WSS074	NA	0.0	NA	NA	NA
Common pipistrelle	WSS076	NA	NA	NA	0.0	NA
Common pipistrelle	WSS077	NA	0.0	NA	NA	NA
Common pipistrelle	WSS097	NA	NA	NA	0.0	NA
Common pipistrelle	WSS100	NA	0.0	NA	0.0	0.0
Common pipistrelle	WSS101	NA	NA	NA	0.0	NA
Common pipistrelle	WSS103	NA	0.0	NA	NA	NA
Common pipistrelle	WSS104	0.3	NA	NA	0.1	NA
Common pipistrelle	WSS105	0.5	0.0	NA	0.0	0.0
Common pipistrelle	WSS106	NA	NA	NA	0.1	NA
Leisler's	WSS026	NA	NA	0.0	NA	NA
Leisler's	WSS027	NA	NA	NA	0.1	NA
Leisler's	WSS029	NA	0.0	NA	0.4	0.0
Leisler's	WSS031	NA	NA	NA	0.0	NA
Leisler's	WSS033	NA	NA	0.0	0.0	NA
Leisler's	WSS034	1.3	0.0	NA	NA	NA
Leisler's	WSS035	0.1	NA	NA	0.1	0.0
Leisler's	WSS036	NA	0.0	NA	NA	NA
Leisler's	WSS037	0.0	NA	NA	NA	NA
Leisler's	WSS038	0.2	NA	NA	NA	NA

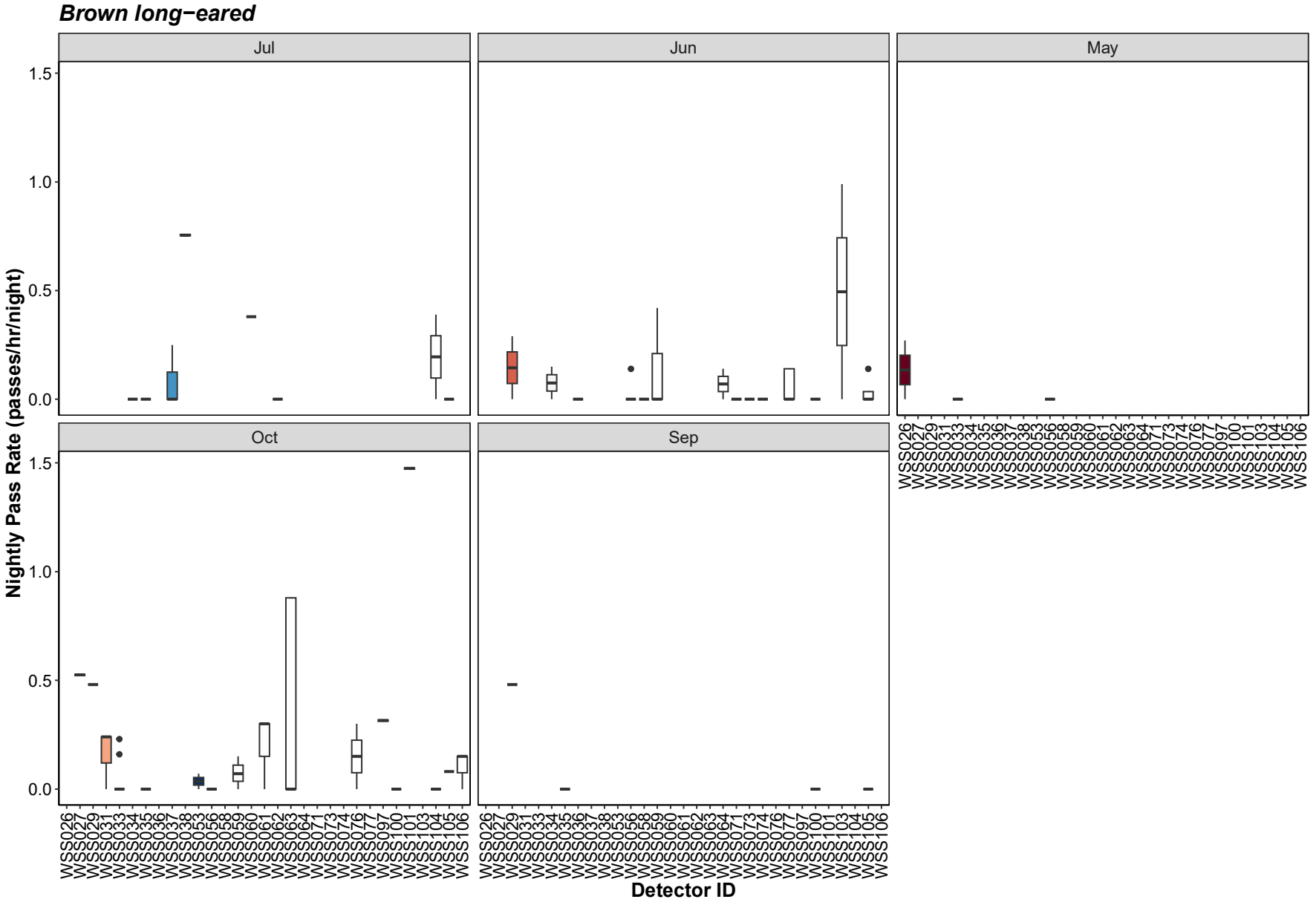
Species	Detector ID	Jul	Jun	May	Oct	Sep
Leisler's	WSS053	NA	NA	NA	0.0	NA
Leisler's	WSS056	NA	0.4	0.0	0.2	NA
Leisler's	WSS058	NA	0.0	NA	NA	NA
Leisler's	WSS059	NA	0.0	NA	0.0	NA
Leisler's	WSS060	1.1	NA	NA	NA	NA
Leisler's	WSS061	NA	NA	NA	0.0	NA
Leisler's	WSS062	0.2	NA	NA	NA	NA
Leisler's	WSS063	NA	NA	NA	0.2	NA
Leisler's	WSS064	NA	0.0	NA	NA	NA
Leisler's	WSS071	NA	0.0	NA	NA	NA
Leisler's	WSS073	NA	0.1	NA	NA	NA
Leisler's	WSS074	NA	0.0	NA	NA	NA
Leisler's	WSS076	NA	NA	NA	0.0	NA
Leisler's	WSS077	NA	0.0	NA	NA	NA
Leisler's	WSS097	NA	NA	NA	0.0	NA
Leisler's	WSS100	NA	0.0	NA	0.0	0.0
Leisler's	WSS101	NA	NA	NA	0.5	NA
Leisler's	WSS103	NA	0.3	NA	NA	NA
Leisler's	WSS104	0.3	NA	NA	0.0	NA
Leisler's	WSS105	0.0	0.5	NA	0.0	0.0
Leisler's	WSS106	NA	NA	NA	0.0	NA
Myotis	WSS026	NA	NA	0.5	NA	NA
Myotis	WSS027	NA	NA	NA	0.0	NA
Myotis	WSS029	NA	0.7	NA	0.3	0.3
Myotis	WSS031	NA	NA	NA	1.7	NA
Myotis	WSS033	NA	NA	0.4	0.3	NA
Myotis	WSS034	0.0	0.0	NA	NA	NA
Myotis	WSS035	0.9	NA	NA	0.0	0.0
Myotis	WSS036	NA	1.0	NA	NA	NA
Myotis	WSS037	0.2	NA	NA	NA	NA
Myotis	WSS038	0.1	NA	NA	NA	NA
Myotis	WSS053	NA	NA	NA	0.7	NA
Myotis	WSS056	NA	0.2	0.1	0.2	NA
Myotis	WSS058	NA	0.2	NA	NA	NA
Myotis	WSS059	NA	2.7	NA	0.4	NA
Myotis	WSS060	0.0	NA	NA	NA	NA

Species	Detector ID	Jul	Jun	May	Oct	Sep
Myotis	WSS061	NA	NA	NA	4.2	NA
Myotis	WSS062	0.2	NA	NA	NA	NA
Myotis	WSS063	NA	NA	NA	0.5	NA
Myotis	WSS064	NA	0.0	NA	NA	NA
Myotis	WSS071	NA	1.3	NA	NA	NA
Myotis	WSS073	NA	1.2	NA	NA	NA
Myotis	WSS074	NA	1.1	NA	NA	NA
Myotis	WSS076	NA	NA	NA	1.3	NA
Myotis	WSS077	NA	0.0	NA	NA	NA
Myotis	WSS097	NA	NA	NA	0.0	NA
Myotis	WSS100	NA	0.1	NA	0.0	0.2
Myotis	WSS101	NA	NA	NA	0.0	NA
Myotis	WSS103	NA	0.6	NA	NA	NA
Myotis	WSS104	1.4	NA	NA	0.0	NA
Myotis	WSS105	2.0	0.3	NA	2.4	2.4
Myotis	WSS106	NA	NA	NA	2.1	NA
Soprano pipistrelle	WSS026	NA	NA	0.8	NA	NA
Soprano pipistrelle	WSS027	NA	NA	NA	0.8	NA
Soprano pipistrelle	WSS029	NA	3.1	NA	2.7	2.8
Soprano pipistrelle	WSS031	NA	NA	NA	14.2	NA
Soprano pipistrelle	WSS033	NA	NA	26.8	44.5	NA
Soprano pipistrelle	WSS034	9.0	13.3	NA	NA	NA
Soprano pipistrelle	WSS035	25.8	NA	NA	18.4	17.4
Soprano pipistrelle	WSS036	NA	1.8	NA	NA	NA
Soprano pipistrelle	WSS037	2.4	NA	NA	NA	NA
Soprano pipistrelle	WSS038	2.4	NA	NA	NA	NA
Soprano pipistrelle	WSS053	NA	NA	NA	9.8	NA
Soprano pipistrelle	WSS056	NA	18.2	6.2	20.1	NA
Soprano pipistrelle	WSS058	NA	9.9	NA	NA	NA
Soprano pipistrelle	WSS059	NA	4.8	NA	0.2	NA
Soprano pipistrelle	WSS060	31.9	NA	NA	NA	NA
Soprano pipistrelle	WSS061	NA	NA	NA	12.0	NA
Soprano pipistrelle	WSS062	10.4	NA	NA	NA	NA
Soprano pipistrelle	WSS063	NA	NA	NA	35.2	NA
Soprano pipistrelle	WSS064	NA	2.7	NA	NA	NA
Soprano pipistrelle	WSS071	NA	4.0	NA	NA	NA

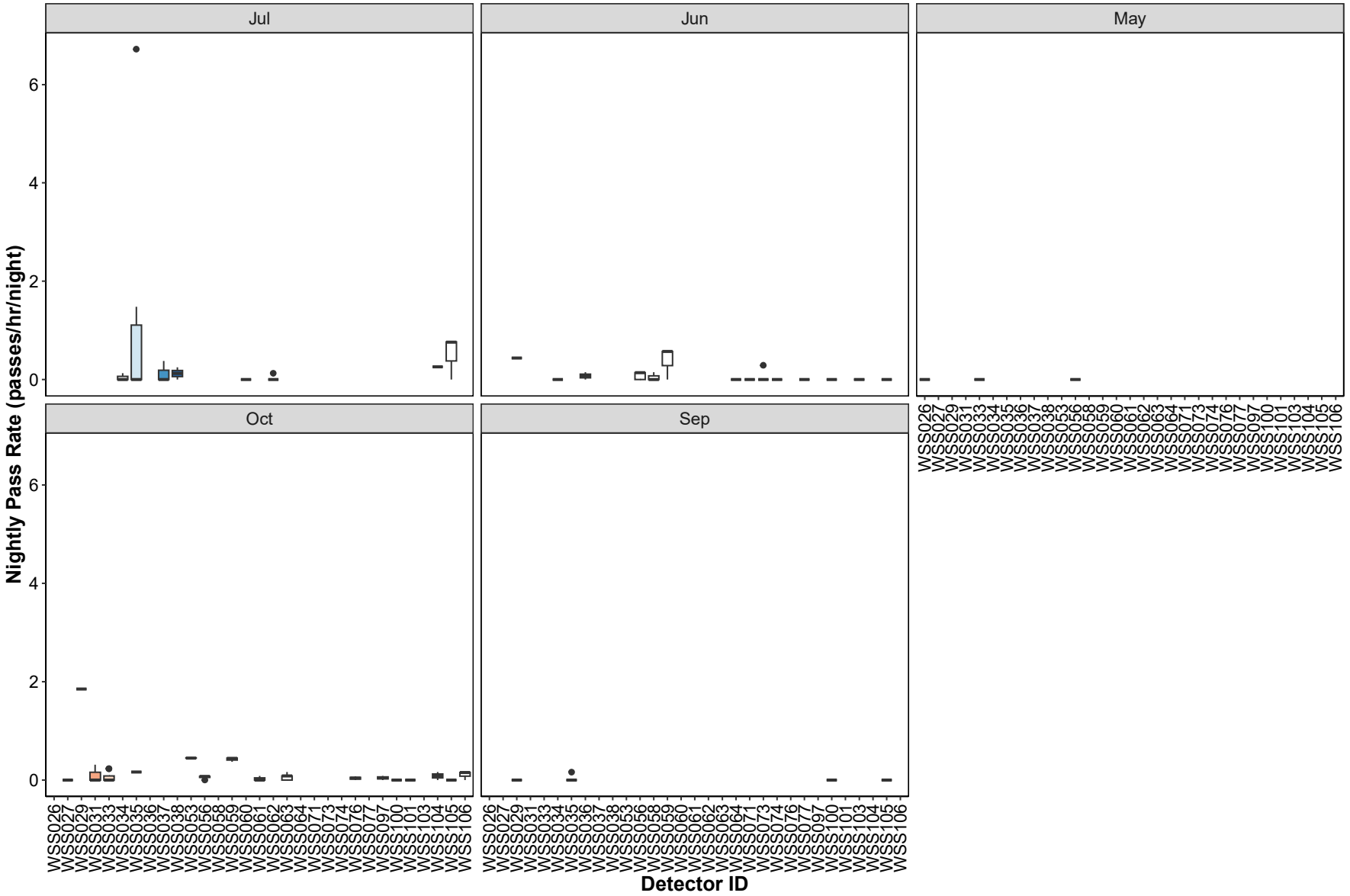
Species	Detector ID	Jul	Jun	May	Oct	Sep
Soprano pipistrelle	WSS073	NA	9.5	NA	NA	NA
Soprano pipistrelle	WSS074	NA	2.0	NA	NA	NA
Soprano pipistrelle	WSS076	NA	NA	NA	13.0	NA
Soprano pipistrelle	WSS077	NA	1.1	NA	NA	NA
Soprano pipistrelle	WSS097	NA	NA	NA	0.9	NA
Soprano pipistrelle	WSS100	NA	13.2	NA	18.4	18.5
Soprano pipistrelle	WSS101	NA	NA	NA	1.1	NA
Soprano pipistrelle	WSS103	NA	4.8	NA	NA	NA
Soprano pipistrelle	WSS104	20.0	NA	NA	0.4	NA
Soprano pipistrelle	WSS105	9.2	18.2	NA	2.2	2.2
Soprano pipistrelle	WSS106	NA	NA	NA	14.7	NA

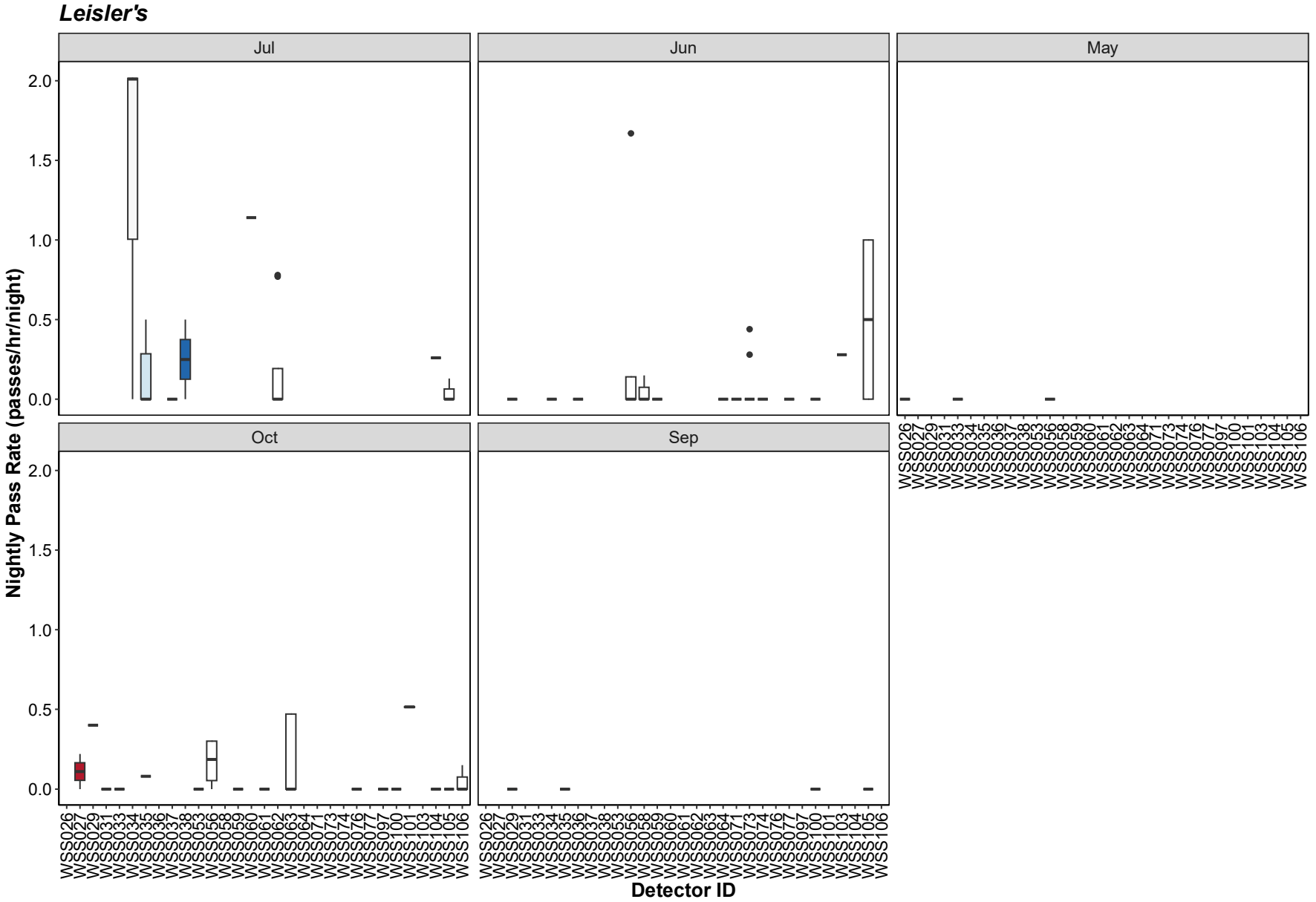
Per Detector

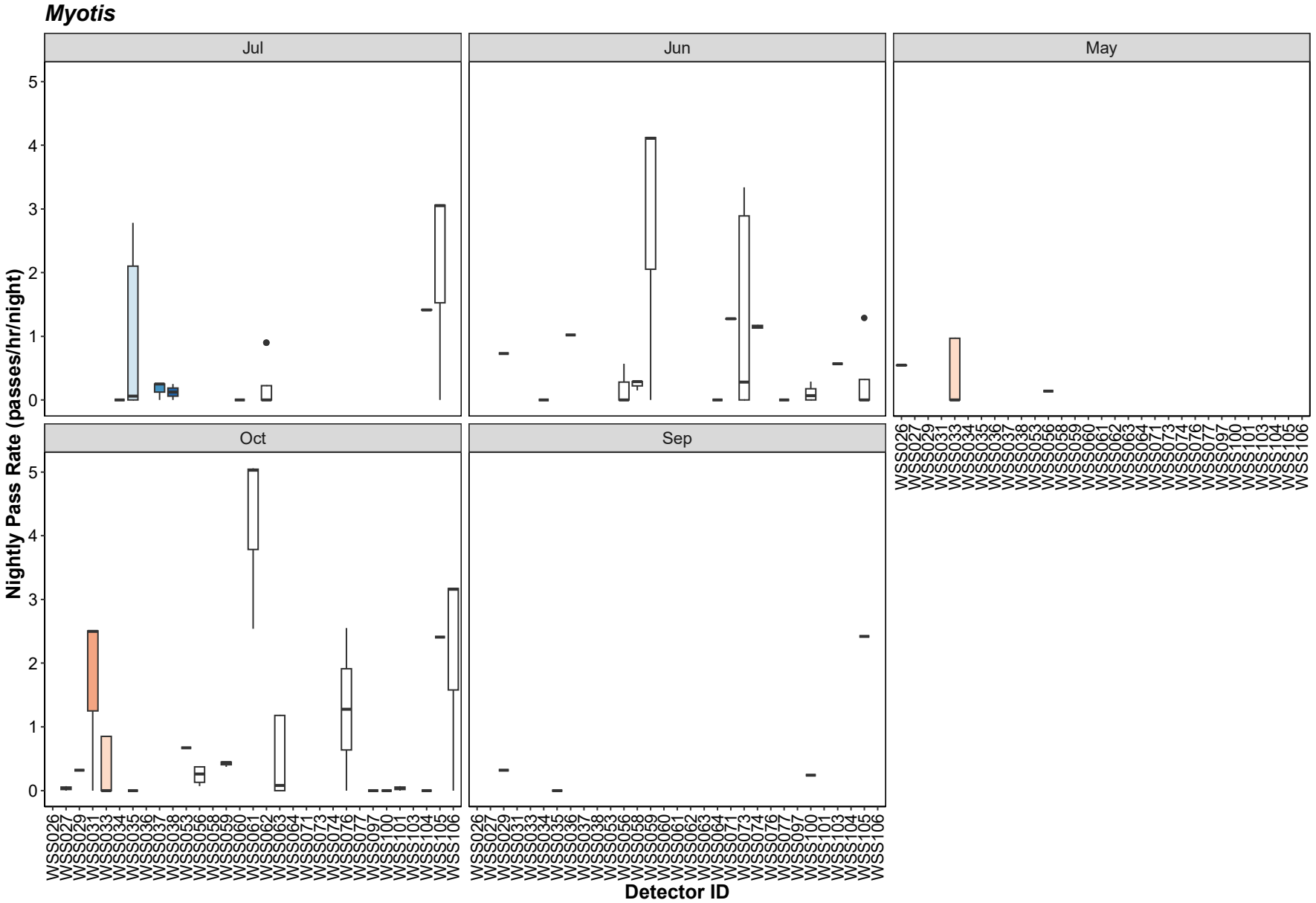
Figure 17. Figures show boxplots for the number of bat passes per hour by detector, for each month. The ‘box’ shows the interquartile range, which is where the middle 50% of the data lie. The line dividing the box is the median, the mid-point of the data. The ‘whiskers’ extend from the box and represent the ranges for the bottom 25% and the top 25% of the data values, excluding outliers. An outlier is any extreme value that lies further away from the box than 1.5 times the interquartile range. Outliers are shown as dots. Where very few passes are recorded it is not possible to produce the box, so the data are shown as a line.

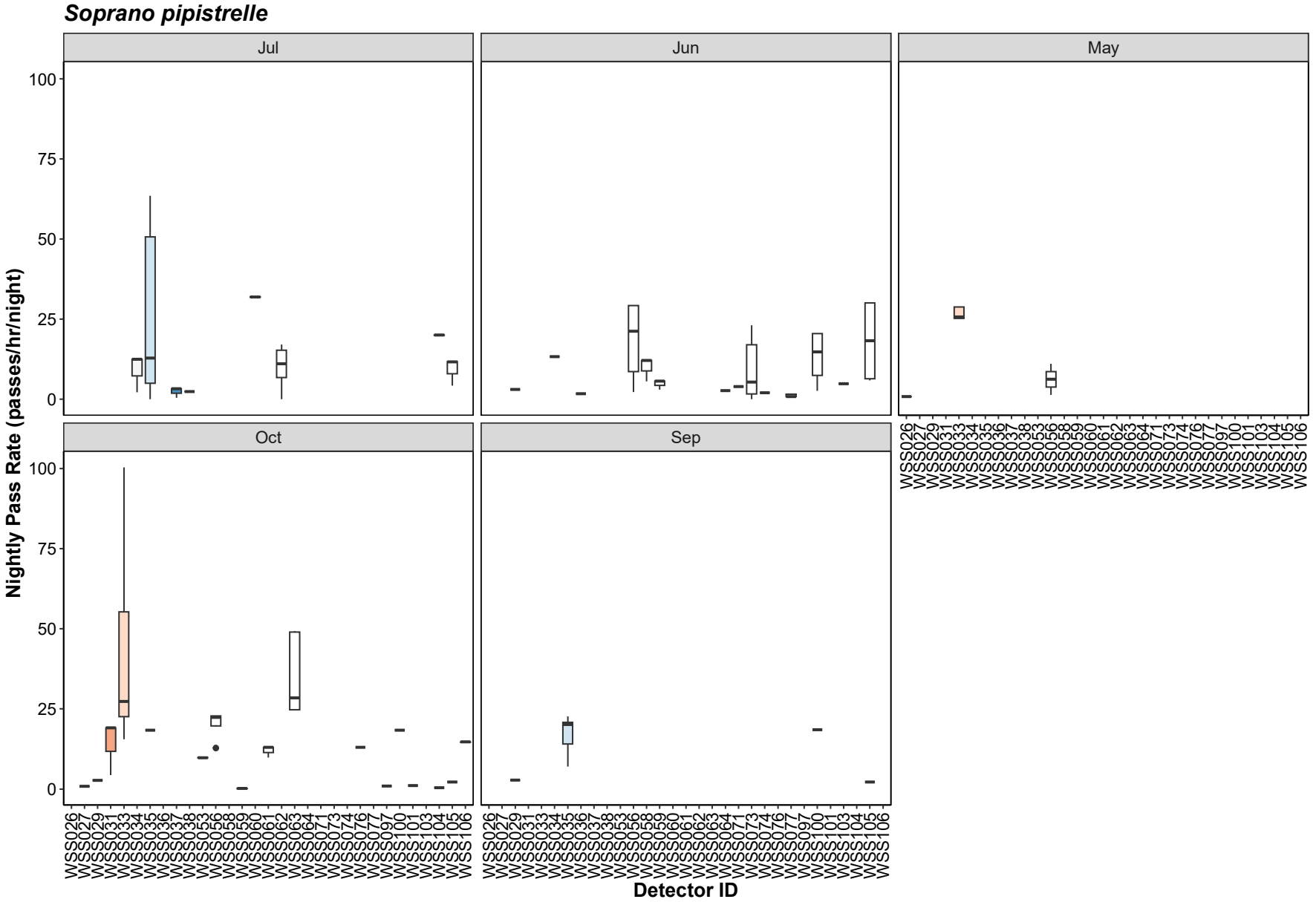

Brown long−eared
Jul
Jun
May
Oct
Sep
Nightly Pass Rate (passes/hr/night)
0.0
0.5
1.0
1.5
WSS026
WSS027
WSS029
WSS031
WSS033
WSS034
WSS035
WSS036
WSS037
WSS038
WSS053
WSS056
WSS058
WSS059
WSS060
WSS061
WSS062
WSS063
WSS064
WSS071
WSS073
WSS074
WSS076
WSS077
WSS097
WSS100
WSS101
WSS103
WSS104
WSS105
WSS106
Detector ID

Common pipistrelle




Leisler's
Jul
Jun
May
Oct
Sep
Nightly Pass Rate (passes/hr/night)
2.0
1.5
1.0
0.5
0.0
WSS026
WSS027
WSS029
WSS031
WSS033
WSS034
WSS035
WSS036
WSS037
WSS038
WSS053
WSS056
WSS058
WSS059
WSS060
WSS061
WSS062
WSS063
WSS064
WSS071
WSS073
WSS074
WSS076
WSS077
WSS097
WSS100
WSS101
WSS103
WSS104
WSS105
WSS106
Detector ID


Myotis
Jul
Jun
May
Oct
Sep
Nightly Pass Rate (passes/hr/night)
0
1
2
3
4
5
WSS026
WSS027
WSS029
WSS031
WSS033
WSS034
WSS035
WSS036
WSS037
WSS038
WSS053
WSS056
WSS058
WSS059
WSS060
WSS061
WSS062
WSS063
WSS064
WSS071
WSS073
WSS074
WSS076
WSS077
WSS097
WSS100
WSS101
WSS103
WSS104
WSS105
WSS106
Detector ID


Soprano pipistrelle
Jul
Jun
May
Oct
Sep
Nightly Pass Rate (passes/hr/night)
0
25
50
75
100
WSS026
WSS027
WSS029
WSS031
WSS033
WSS034
WSS035
WSS036
WSS037
WSS038
WSS053
WSS056
WSS058
WSS059
WSS060
WSS061
WSS062
WSS063
WSS064
WSS071
WSS073
WSS074
WSS076
WSS077
WSS097
WSS100
WSS101
WSS103
WSS104
WSS105
WSS106
Detector ID

Bat Activity per Detector Location

Figure 18. Detector ID reference:

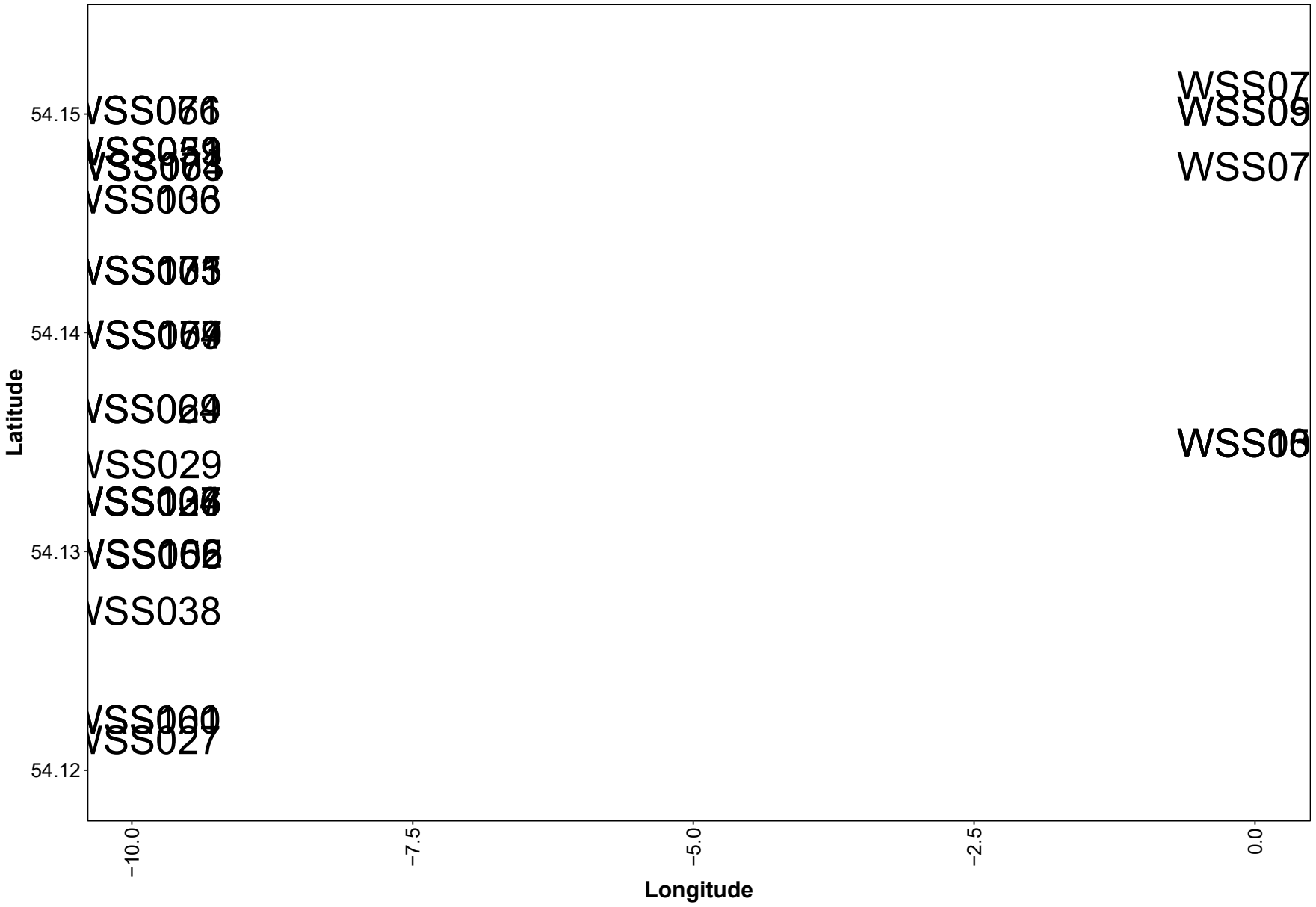

54.15
54.14
54.13
54.12
Latitude
−10.0
−7.5
−5.0
−2.5
0.0
Longitude

Figure 19. Median Nightly Pass Rate (bat passes/hr/night) throughout the survey period - represented by the size and colour of the point at each detector location.

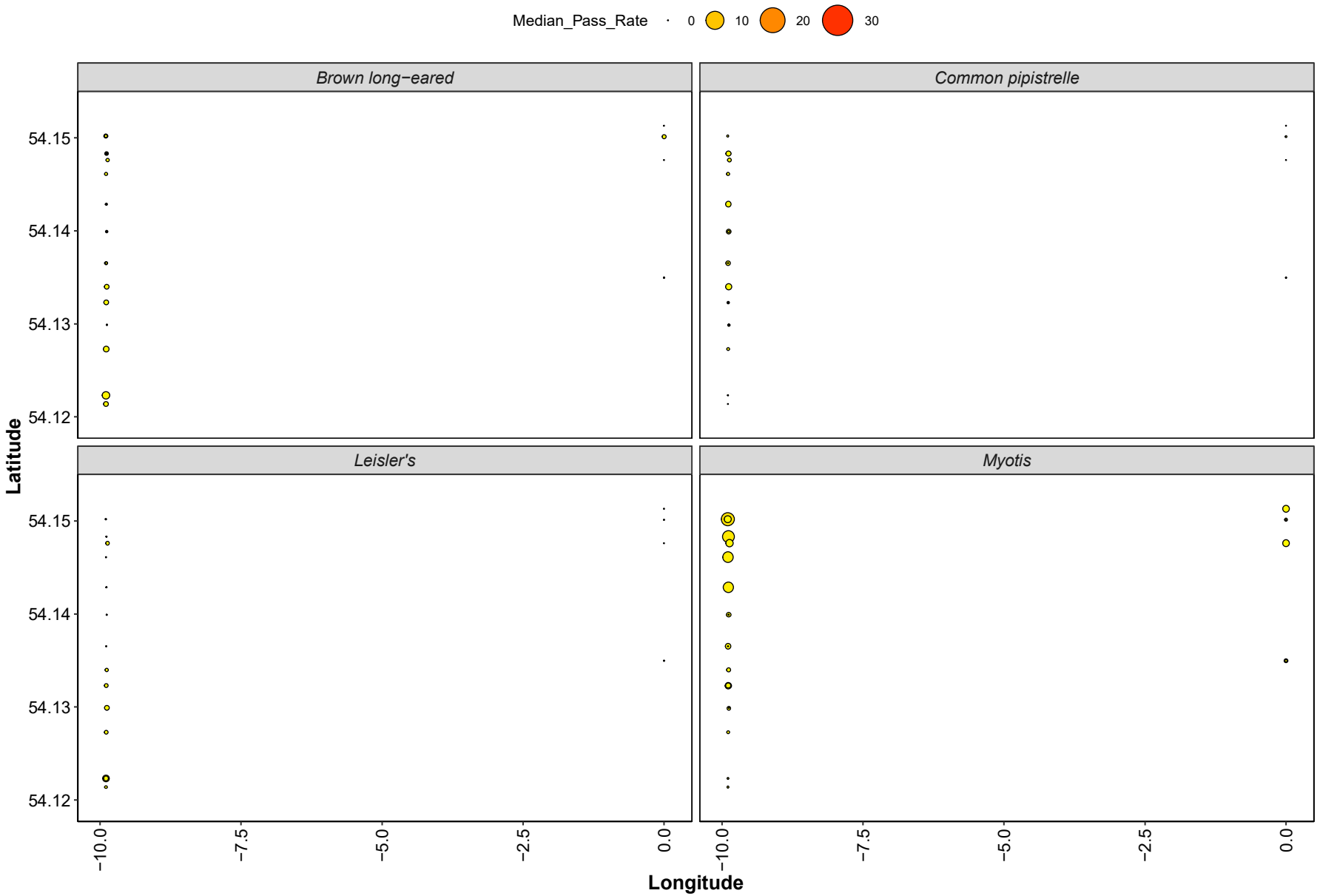
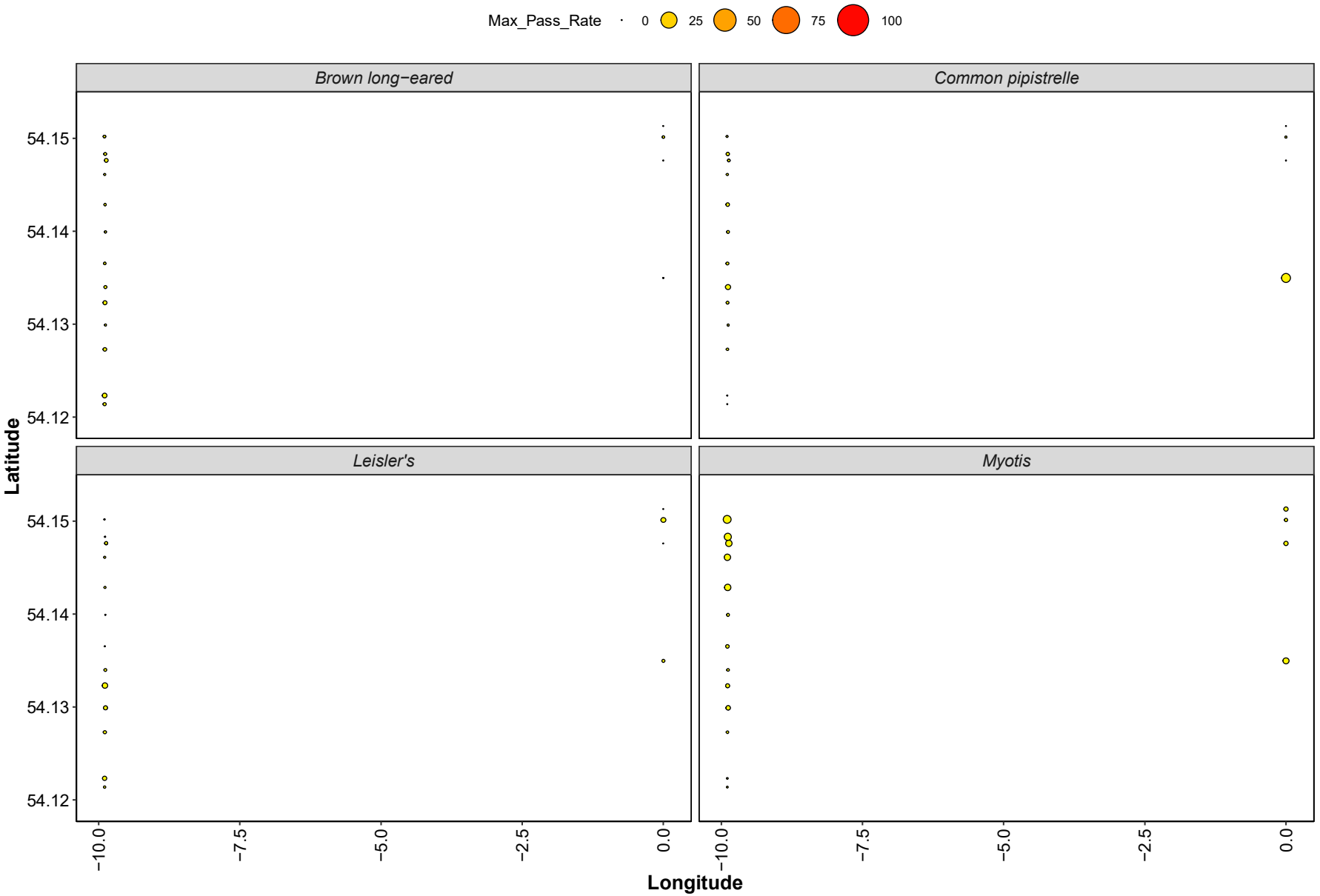

Median_Pass_Rate
0
10
20
30
Brown long−eared
Common pipistrelle
Leisler's
Myotis
Latitude
54.15
54.14
54.13
54.12
−10.0
−7.5
−5.0
−2.5
0.0
Longitude

Figure 20. Maximum Nightly Pass Rate (bat passes/hr/night) recorded in a single night throughout the survey period - represented by the size and colour of the point at each detector location.


Max_Pass_Rate
0
25
50
75
100
Brown long−eared
Common pipistrelle
Leisler's
Myotis
Latitude
54.15
54.14
54.13
54.12
−10.0
−7.5
−5.0
−2.5
0.0
Longitude

Thank you for using Ecobat!

2022 and 2023 Bat Survey Results Report for the Proposed Muingmore Wind Farm, Co. Mayo

Report prepared by Woodrow APEM Group

For RWE

24 Mar 2026

Woodrow APEM Group, Upper Offices, Ballisodare Centre, Station Rd, Ballisodare, Co. Sligo F91R9VC

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DOCUMENT CONTROL

Document	2022 and 2023 Bat Survey Results Report for the Proposed Muingmore Wind Farm, Co. Mayo
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Prepared by	Woodrow APEM Group, Upper Offices, Ballisodare Centre, Station Road, Ballisodare, Co Sligo, F91 R9VC, Ireland.
Report compiled by	Louise Gannon 2022 Róisín O'Connell 2023
Checked internally	Oisín O Sullivan
Approved by	Maeve Maher-McWilliams
Status | Version | Date	Issued | V.01 |

STATEMENT OF AUTHORITY

Bat surveys conducted at Muingmore Wind Farm in 2022 and 2023 were undertaken by appropriately experienced staff from Woodrow APEM Group ('Woodrow'), and site visits for surveying and static deployments were completed by specialist bat surveyors including: Róisín O'Connell, Patrick Power, Daithí Lavelle, Louise Gannon and Oisín O Sullivan. This report was prepared by Louise Gannon and Róisín O'Connell, technically reviewed by Oisín O Sullivan and was approved by Maeve Maher-McWilliams.

Róisín O'Connell is an Ecologist with Woodrow. Róisín has completed a BSc (Hons) in Environmental Science at Atlantic Technological University in Sligo. Her final year thesis involved carrying out aquatic macrophyte surveys of Lough Doon in County Leitrim. Her work as an ecologist with Woodrow is focused on bat data analysis including bat call identification and bat roost/habitat suitability surveys. Róisín has developed a high level of proficiency with Kaleidoscope and BatExplorer, the analysis software used to assess bat calls and activity. Róisín also possesses marine and freshwater habitat survey skills from her time studying at ATU. Since joining Woodrow, Róisín has authored multiple bat activity reports and coordinated the bat surveys conducted at Woodrow in 2022. Róisín is a Qualifying member of CIEEM and holds a license to survey bat roosts from the Department of Culture Housing. Local Government and Heritage.

Patrick Power is an Ecologist with Woodrow. Patrick has completed a BSc in Forestry, BSc (Hons) in land management in Forestry with Waterford Institute of Technology. He is currently doing an MSc in Wildlife Biology and Conservation with Edinburgh Napier University. His work as a graduate ecologist with Woodrow is focused on bat data analysis including bat call identification and bat roost/habitat suitability surveys. Patrick has developed a high level of proficiency with Kaleidoscope and BatExplorer, the analysis software used to assess bat calls and activity. Patrick also possess

Reptile, mammal and habitat surveying skills. Patrick is a student member of CIEEM and is currently training to gain a license to survey bat roosts from the Department of Culture Heritage and the Gaeltacht.

Daithí Lavelle is a seasonal field worker with Woodrow. Daithí has completed various courses including permaculture design, outdoor vegetable crop production, and much more. Daithí is also a qualified beekeeper and a self-employed environmental education officer. He manages 13 acres of native woodland and delivers many workshops to various community groups for adults and children.

Louise Gannon is an Ecologist with Woodrow. Louise has completed a BSc in Environmental Science. Her main experience lies in carrying out emergence/re-entry bat survey and activity transect surveys for bats, deployment of static bat detectors and reporting on the same. She also carries out bat call analysis using Kaleidoscope and BatExplorer, the analysis software used to assess bat calls and activity. Louise has a licence to survey bat roosts from the Department of Culture, Heritage and the Gaeltacht. She is also a Qualifying member of CIEEM.

Oisín O'Sullivan is a Senior Ecologist with Woodrow. Oisín has completed a BSc in Ecology and Environmental Biology at University College Cork. His final year thesis involved bat surveys of urban habitats in Cork City. His work as a graduate ecologist with Woodrow was focused on bat data analysis including bat call identification and bat roost/habitat suitability surveys. Oisín has developed a high level of proficiency with Kaleidoscope, Ecobat and BatExplorer, all of which are analysis software used to assess bat calls and activity Since joining Woodrow, Oisín current work involves coordinating, surveying, analysing data, and writing summary bat activity reports for all onshore wind developments that Woodrow has worked on in the 2021 and 2022 survey seasons. This also involves the use of R to provide data on bat activity relative to weather conditions with the goal of informing curtailment as a mitigation measure. During 2022 Woodrow began undertaking offshore bat surveys including Oisín as a technical lead on these projects. These surveys involve the long-term recording of activity on islands and headlands to record migration events. Oisín is a Qualifying member of CIEEM and holds a license to survey bat roosts from the Department of Culture Heritage and the Gaeltacht.

Maeve Maher-McWilliams is an Associate Director with Woodrow. Maeve has completed a BSc (Hons) in Biological Sciences and a MSc in Evolutionary and Behavioural Ecology. Maeve is an experienced ecologist and has worked for over thirteen years on complex environmental impact assessments and mitigation strategies for development projects across Ireland, Northern Ireland and Scotland. Maeve has been involved in projects across several sectors such as renewable energy; linear infrastructure; flood relief schemes and port developments; tourism and recreation; residential, pharmaceutical and data centre developments. She is proficient in Ecological Impact Assessment and Appropriate Assessment.

CONTENTS

1 INTRODUCTION

1.1 The proposed site

The proposed site at Muingmore Wind Farm is located *c.* 8 km west of Bangor-Erris village and *c.* 2.5 km east of Doolough strand, Co. Mayo. Habitats within the lands mainly comprise commercial forestry, areas of clear fell forestry and peatland habitats.

1.2 Protected status of bats in Ireland

Bats are protected by law in the Republic of Ireland under the Wildlife Act 1976 and subsequent amendments (2000 and 2010). Under the Wildlife Act and amendments, it is an offence to intentionally disturb, injure or kill a bat or disturb its resting place.

NPWS (2021a & 2021b) guidelines outline the further legal protection afforded to species listed on Annex IV of the of the Habitats Directive (92/43/EEC), as required by Articles 12, 13 and 16. The Habitats Directive is transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations, 2011-2021 (Habitats Regulations) and this legislates for requirements in relation to Strict Protection of animals listed on Annex IV of the Habitats Directive, which are set out in Regulation 51, with Regulation 54 pertaining to derogation licences, including Regulation 54 A when the Minister is applying for a derogation

All species of bat are listed on Annex IV of the EU Habitats Directive (1992). The system of Strict Protection is applied across the entire natural range of Annex IV species, even outside of protected sites. As set out in Regulation 51, carrying out of any work with the potential to capture or kill any specimen of a Strictly Protected species, or to disturb these species, and for which a derogation licence has not been granted, may constitute an offence under Regulation 51 of the Habitats Regulations. Furthermore, any action resulting in damage to, or destruction of, a breeding or resting place of an animal may constitute an offence unless a derogation licence has been granted. This action does not need to be deliberate, i.e. places onus on demonstrating due diligence. Breeding and resting places are protected even when the animals are not using them, once there is a high probability that they will return. Planning authorities may refuse planning permission solely on grounds of the predicted impact on protected species like bats.

The lesser horseshoe bat (*Rhinolophus hipposideros*), which occurs only in Counties Cork, Kerry, Limerick, Clare, Mayo and Galway in the Republic of Ireland (NPWS, 2019), is listed in Annex II of the EU Habitats Directive 1992. The level of protection offered to the lesser horseshoe bat effectively means that areas important for this species are designated as Special Areas of Conservation (SACs). For remaining bats, the EU requires that they are strictly protected. Among Ireland's obligations under the Habitats Directive, is the obligation to '*maintain favourable conservation status*' of Annex-listed species.

Ireland has ratified two international conventions, which afford protection to bats amongst other species. These are known as the 'Bern' and 'Bonn' Conventions. The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982) exists to conserve all species and their habitats, including bats. The Convention on the Conservation of Migratory Species of Wild

Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries, which covers certain species of bat.

1.3 Scope of works

In order to comply with the requirements of the EU Habitats Directive 1992 and the EC Habitats Regulations 2011, wind farm applications in Ireland need to be assessed as to their potential impact on bat populations. To inform the impact assessment at the proposed site a range of bat surveys were undertaken including a desk-based study and field surveys. The appropriate methodological approach for assessing bat population on proposed wind farm sites is Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation. (Scottish Natural Heritage (SNH) *et al.*, 2019, as updated NatureScot *et al.*, 2021). Hereafter these guidelines will be referenced as NatureScot *et al.* (2021).

This report was written to serve as technical results report to be included as an appendix of an Environmental Impact Assessment Report (EIAR) for the proposed Muingmore Wind Farm development hereafter referred to as the proposed site. It provides details of methodologies and survey effort for the suite of bat surveys conducted for the proposed site, including tabulated results, maps and charts, as well as reports from roost suitability surveys, bat activity surveys and seasonal static bat detector surveys. These surveys highlight baseline bat populations and habitat suitability of the proposed site.

In summary, bat surveys undertaken are in compliance with NatureScot *et al*., (2021) guidelines. Static bat recording equipment was deployed three times at selected locations representative of the proposed turbine layout for the proposed site. In 2022 three deployments each lasting a minimum of 10 nights and covered spring (03 – 17 May), summer (06 – 19 July) and autumn (13 – 27 September) active seasons for bats and in 2023 covered the spring (16 – 31 May), summer (11 – 26 July) and autumn (06 – 25 September) active seasons for bats. These were undertaken in conjunction with continuous monitoring of climatic conditions using the Met Eireann meteorological service station in Belmullet to ensure recording windows were inline within compliant weather parameters. In addition, informed by an assessment of potential bat roost features within the proposed site, manual roost emergence/re-entry surveys and bat activity transects were undertaken. The observations recorded during roost emergence/re-entry survey and bat activity surveys contextualise how bats utilise the proposed site.

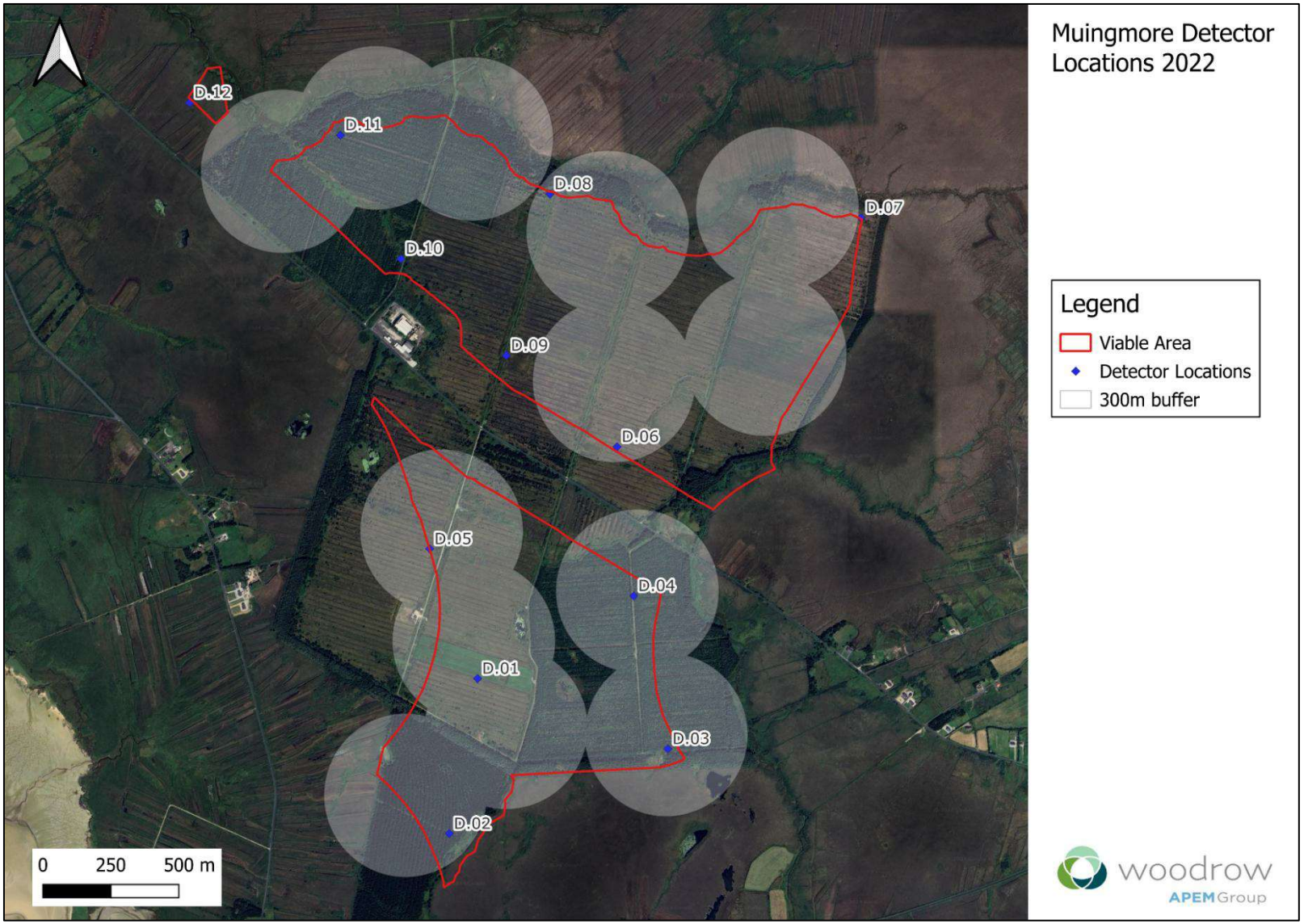

Figure 1: Proposed turbine locations and potential 300m zone of influence.

2 METHODOLOGY

Baseline surveys for bats aim to identify the species occurring within the proposed site, and to provide an understanding of how local bat populations utilise the site in terms of density of use for foraging, roosting (maternity and hibernation), social interactions and commuting.

Bat surveys were conducted by Woodrow at Muingmore over the 2022 active bat season to ensure compliance with the most recently published guidelines pertaining to bat surveying, impact assessment and mitigation for bats at onshore wind turbines (NatureScot *et al*., 2021). This guidance document supersedes some aspects of the previous guidelines (Collins, 2016 updating Hundt, 2012 & Bat Conservation Ireland (BCI), 2012) and requires a site-by-site approach to survey design, with the only prescriptive element being the positioning, number and duration of static bat detector deployments, as well as strongly recommending continual monitoring of site-specific weather data on rainfall, temperature and wind speeds.

As a minimum, the latest NatureScot *et al*. (2021) guidelines require three deployments of static detectors aimed at covering spring (April to May), summer (June to mid-August) and autumn (mid-August to October), each with a minimum deployment period of 10 nights (within compliant weather parameters). Seasonal deployments of static detectors are set out at all potential turbine locations for proposals comprising ten or less turbines, with a third of any additional locations also covered up to a maximum of 40 detectors. Compliant weather conditions are defined as: temperatures at $\geq$ 8°C at dusk, maximum ground level wind speed of 5 m/s and no, or only very light, periodic rainfall.

Additional requirements of the NatureScot *et al*. (2021) guidelines include swarming surveys, and winter roost inspections if potential hibernation roosts are identified. Transect and/or vantage point surveys are seen as methods used to complement the static detector surveys, with applicability being discretionary, based on professional judgement, and on a case-by-case site-specific basis.

2.1 Desk study

A desk-based review of habitat availability in the environs of the proposed site, and the available bat data was used to inform the scope of the bat surveys required. As recommended by both BCI (2012) and NatureScot *et al*. (2021) the area covered by the desk-based review was extended to 10 km surrounding the wind farm site. The desk-based study included:

- Reviewing distances from closest Natura 2000 sites designated for bats (the only bat SACs in Ireland are designated for lesser horseshoe bat *Rhinolophus hipposideros*).
- Examining aerial imagery and 6-inch maps to identify potential bat foraging and roosting habitats.
- Lundy *et al*. (2011) provides a high-level assessment of potential habitat suitability for different species of bat occurring in Ireland.
- Review of data received from BCI within 10 km of the wind farm site and the results of Biodiversity Maps report for the 10 km squares covering the site [F72], including species recorded and known roosting sites (NBDC, 2023).

2.2 Roost assessment surveys

The most recent guidelines (NatureScot *et al*., 2021) recommend that:

"……*features that could support maternity roosts and significant hibernation and/or swarming sites (both of which may attract bats from numerous colonies from a large catchment) within 200 m plus rotor radius of the boundary of the proposed development should be subject to further investigation*".

Turbine specification, as well as locations are regularly altered during the design phase of projects, and, as a precaution, Woodrow conduct roost assessment surveys within 300 m of the potential build area. Features along the access tracks between turbines (within *c.* 30 m) were also assessed for roost features. Wide reaching roost and foraging habitat assessment of the wind farm site were undertaken during March 2020, as part of a scoping exercise.

Surveyors utilised the assessment criteria described in Collins (2016) which provides guidelines for assessing potential suitability of habitat features as bat roosts and for foraging bats. This allows surveyors to assign Potential Roost Features (PRFs), as negligible, low, moderate or high status in terms of their potential for bats, see **Table 1**.

Collins (2016) guidelines was the prevailing guidance document at the time of roost assessment surveys. Bat Conservation Trust (BCT) published updated guidelines in September 2023, *Bat Surveys for Professional Ecologists: Good Practice Guidelines 4th edition*, Collins (2023). In particular the updated guidelines relate to a newer classification system for potential roost features in trees. Consequently, consistency was maintained with assessment criteria described in Collins (2016), which provides guidelines for assessing potential suitability of habitat features as bat roosts and for foraging bats as set out in Table 1.

Table 1: Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement (Collins, 2016)

Suitability	Description Roosting Habitats	Commuting and Foraging Habitats
Negligible	Negligible habitat features on the site likely to be used by roosting bats	Negligible habitat features on site likely to be used by commuting or foraging bats
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[a] and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e., unlikely to be suitable for maternity or hibernation[b]). a tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential[c].	Habitat that could be used by small numbers of commuting bats such as gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by ither habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.

Suitability	Description Roosting Habitats	Commuting and Foraging Habitats
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions[a] and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed.	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, conditions[a] and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, treelined watercourses and grazed parklands. Site is close to and connected to known roosts.

[a] For example, in terms of temperature, humidity, height above ground level, light levels or levels or disturbance.

[b] Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten *et al*., 2015). This phenomenon requires some research in the UK but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in large buildings in highly urbanised environments.

[c] This system of categorisation aligns with BS 8596:2015 Surveying for bats in trees and woodland (BSI,2015).

Based on the features present and the location of the trees or other structures, the potential use of the feature can also be considered, and classified (as in Hundt, 2012):

- Maternity (breeding roost).
- Summer/transitional (to include transitional, occasional, satellite, night and day roosts); and,
- Hibernation roost.

Surveyors initially employed non-invasive external and internal inspection techniques for any building encountered, and trees were assessed from the ground.

All roost inspections and, full building/tree inspections are undertaken under licence from NPWS, and these would include inspecting any potential hibernation roosts. Based on the findings of roost assessment and PRF surveys, roost inspections were required at a subterranean path adjacent to the abandoned factory buildings. This was classified as moderate PRF and needing winter roost inspections. There were also some PRF's identified in the attic of the old office building on the

factory grounds, a single bat dropping was found here. However, the results yielded no hibernating bats were found on inspection.

Based on the findings of the roost assessment surveys features classed as having moderate to high suitability for bats and/or demonstrating likely occupancy, (e.g., dropping found) were targeted for further bat activity surveys, including dusk emergence/dawn re-entry surveys.

2.3 Roost emergence/re-entry surveys

Dusk emergence/dawn re-entry surveys were completed in 2022 to ascertain if PRFs identified on site were in use by roosting bats. PRFs classified as low were surveyed a minimum of once and moderate features were surveyed a minimum of two times. Dusk surveys commenced 15 mins before sunset and were conducted until 1.5 hours after sunset and were typically undertaken prior to or after undertaking walkover transect surveys of the site. Dawn surveys commenced 1.5 hours before sunrise and concluded 15 minutes after sunrise. Dusk emergence/dawn re-entry surveys were undertaken using Elekon Batlogger M bat detectors to collect geo-referenced records of bat activity, which were then analysed using BatExplorer. Survey times and roost survey effort are shown in **Table 3** below.

An interim guidance note published by ((BCT), 2022) indicated the requirement for night vision aids to be used during roost emergence surveys. Night vision aids were not applicable during the 2022 emergence surveys as no guidance had yet been published in this regard. Night vision aids were used to increase precision of emergence surveys during the dusk survey completed on 06 June 2023.

APPENDIX 1: contains images of the features surveyed.

Table 2: Summary of roost emergence/re-entry survey effort

Date	Start time	End time	Location	Survey type	Weather Conditions
02-Jun-2022 (Sunset 22:00)	21:45	23:30	54.143658, -9.895703	Emergence Survey - At gables of old office (O. O Sullivan & D. Lavelle)	Wind: 3.6 km/h Temp: 13° Oktas: 5 Precipitation: Dry
03-Jun-2022 (Sunrise 05:11)	03:45	05:24	54.14326, -9.894948	Re-entry Survey – North and east office faces (O. O Sullivan & D. Lavelle)	Wind: 3.6 km p/h Temp: 9° Precipitation: Dry
06-Jul-2022 (Sunset 22:15)	20:26	23:30	54.143468, -9.893446	Emergence Survey – Southern face of the metal factory (P. Power & D. Lavelle)	Wind: 11 km/h Temp: 14° Precipitation: Misty
07-Jul-2022 (Sunrise 05:15)	03:45	04:07	54.143406, -9.895358	Re-Entry survey – Survey cancelled due to bad weather (P. Power & D. Lavelle)	Wind: 7 km/h Temp: 13° Precipitation: Heavy

Date	Start time	End time	Location	Survey type	Weather Conditions
19-Jul-2022 (Sunset 22:00)	21:45	23:30	54.14335, -9.895081	Emergence survey - Southeast face of old office building (P. Power & D. Lavelle).	Wind: 4 km/h Temp: 15° Precipitation: Dry
20-Jul-2022 (Sunrise 05:30)	04:00	05:45	54.143316, -9.895089	Re-Entry survey – Southern gable of metal factory (P. Power & D. Lavelle)	Wind:9 km/h Temp: 13° Precipitation: Misty
13-Sep-2022 (Sunset 20:02)	19:46	21:32	54.14349, -9. 895429	Emergence survey – Southern section office building (P. Power & D. Lavelle)	Wind: 10.8 km/h Temp: 13° Precipitation: Dry
20-Oct-2022 (Sunrise 08:15)	07:00	08:30	54.143406, -9.895358	Re-Entry survey – Southwest section of office building (R. O'Connell)	Wind: 12 km/h SE Temp: 12° Precipitation: Dry
	07:00	08:30	54.143361, -9.89424	Re-Entry survey – front entrance of metal factory (P. Power)	Wind: 12 km/h SE Temp: 12° Precipitation: Dry
06-Jun-2023	21:47	23:33	54.143495, -9.894216	Emergence survey – Front entrance of metal factory (R. O'Connell)	Wind:6 m/s NE Temp:15°C Perception: Dry

2.4 Winter roost inspections

NatureScot *et al*., (2021) recommend that winter roost surveys should also be carried out for any potential hibernation roost within 200m plus rotor radius of developable area. In practice roost surveys are carried out within a 300m plus rotor radius to account for possible turbine relocation and or turbine model variations. The survey was conducted on the 09 March 2022, within the timeframe in which bats would still be utilising the hibernation roosts. Surveys involved searching for and collecting bat faecal samples to be sent for DNA analysis, closer examination of roost potential, the primary use of an endoscope and a thermal imaging camera as a secondary device, as thermal imagery is limited to accuracy to detect the heat signatures of hibernating bats due to bats being in a state of torpor. Structures assessed as PRFs of low to moderate roost potential and which were judged to have potential for occupation as a winter roost were examined. These investigations carried out on 09 March 2022 ruled out the potential structures as hibernation roosts and this data is valid for the survey period of 2022 and 2023. As such no further surveys were carried out in 2023.

2.5 Roost emergence/re-entry surveys

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06-Jul-2022 (Sunset 22:15)	20:26	23:30	54.143468, -9.893446	Emergence Survey – Southern face of the metal factory (P. Power & D. Lavelle)	Wind: 11 km/h Temp: 14° Precipitation: Misty
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19-Jul-2022 (Sunset 22:00)	21:45	23:30	54.14335, -9.895081	Emergence survey - Southeast face of old office building (P. Power & D. Lavelle).	Wind: 4 km/h Temp: 15° Precipitation: Dry
20-Jul-2022 (Sunrise 05:30)	04:00	05:45	54.143316, -9.895089	Re-Entry survey – Southern gable of	Wind:9 km/h Temp: 13° Precipitation: Misty

Date	Start time	End time	Location	Survey type	Weather Conditions
				metal factory (P. Power & D. Lavelle)	
13-Sep-2022 (Sunset 20:02)	19:46	21:32	54.14349, -9. 895429	Emergence survey – Southern section office building (P. Power & D. Lavelle)	Wind: 10.8 km/h Temp: 13° Precipitation: Dry
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06-Jun-2023	21:47	23:33	54.143495, -9.894216	Emergence survey – Front entrance of metal factory (R. O'Connell)	Wind:6 m/s NE Temp:15°C Perception: Dry

2.6 Winter roost inspections

NatureScot *et al*., (2021) recommend that winter roost surveys should also be carried out for any potential hibernation roost within 200m plus rotor radius of developable area. In practice roost surveys are carried out within a 300m plus rotor radius to account for possible turbine relocation and or turbine model variations. The survey was conducted on the 09 March 2022, within the timeframe in which bats would still be utilising the hibernation roosts. Surveys involved searching for and collecting bat faecal samples to be sent for DNA analysis, closer examination of roost potential, the primary use of an endoscope and a thermal imaging camera as a secondary device, as thermal imagery is limited to accuracy to detect the heat signatures of hibernating bats due to bats being in a state of torpor. Structures assessed as PRFs of low to moderate roost potential and which were judged to have potential for occupation as a winter roost were examined. These investigations carried out on 09 March 2022 ruled out the potential structures as hibernation roosts and this data is valid for the survey period of 2022 and 2023. As such no further surveys were carried out in 2023.

2.7 Bat activity transect surveys

The NatureScot *et al*., (2021) guidance considers the application of transect surveys to be discretionary, with survey requirements designed on a site-by-site basis. Transects are complementary to data collected from static bat detectors; and are important for identifying flight lines and for gaining understanding of bat abundance within the survey area. Driven transects can provide useful information on the wider landscape in the vicinity of the proposed site. If driven

transects are undertaken, it is important that appropriate microphones are used and are directed above the vehicle. It is also important to remain at a constant low speed (< 10 km/h). Point counts (of a fixed duration) can be incorporated into transects to survey specific features to provide information on comparative density of use.

Four transects were completed in 2022 and one transect was completed in 2023 which included coverage of the proposed site. Survey dates and weather conditions for transects conducted in 2022 and in 2023 are provided in **Table 4**, with the transect routes illustrated on **Figure 2**.

During transects, field records were made of bat species encountered, number of bat passes, activity (where known e.g., foraging, commuting, advertising), travelling direction and approximate height (where known). Temperature and wind speed were measured at intervals throughout the survey. Batloggers recorded temperature throughout the surveys.

Table 4: Summary of bat activity transect survey effort

Date	Start time	End time	Survey type	Weather Conditions
02-Jun-2022 (Sunset 22:00)	23:32	01:00	Transect Survey - Walked transect, started at the buildings in the western section of the site and continued up north (O. O Sullivan & D. Lavelle)	Wind: 3.6 km/h Temp: 12° Precipitation: Some low mist
06-Jul-2022 (Sunset 22:15)	23:31	01:00	Transect survey - Walked transect in the south section of the site (P. Power & D. Lavelle)	Wind: 2 km/h NNW Temp: 14° Precipitation: Drizzle
19-Jul-2022 (Sunset 22:00)	23:30	00:42	Transect survey – Walked transect of northern section of the site (P. Power & D. Lavelle)	Wind:4 km/h Temp: 14° Precipitation: Dry
13-Sep-2022 (Sunset 20:02)	21:48	23:00	Transect survey – Walked transect of the northern section of the site. (Power & D. Lavelle).	Wind: 7 km/h Temp: 13° Precipitation: Dry
06 -Jun-2023 (Sunset 22:08)	23:56	00:35	Transect survey - Walked transect in the south section of the site. (O'Reilly & R. O'Connell)	Wind: 14 km/h E Temp: 13° Precipitation: Dry

2.8 Static bat detector surveys

Static detector surveys were undertaken using Wildlife Acoustics Song Meters, Song Meter 2 (SM2BAT+) and Song Meter 4 (SM4BAT-FS) , on three occasions covering spring, summer and autumn in 2022 and 2023. Static bat detectors were deployed to record the types of bat species present and to provide an overview of how bat activity is broadly distributed over the site at given habitat features and specifically at selected turbine locations. This provides context to bat activity within the site to supplement and provide a comparison for the turbine locations, for example comparing bat activity along habitat features vs bat activity in open areas removed from features, emulating post-construction conditions around turbines.

Table 5 and **Table 6** below shows dates and duration of each static deployment. The location of all static detectors for each deployment in 2022 and 2023 is shown on **Figure 3**. **APPENDIX 2: Weather data for each static deployment period** shows the weather conditions during the three deployments.

and 2023 shows photographic evidence of each detector location in the field.

Table 5: Static detector deployment dates for each season

Survey year	Season	Deployment date	Collection date
2022	Spring	03-May-2022	17-May-2022
	Summer	06-Jul-2022	19-Jul-2022
	Autumn	13-Sep-2022	27-Sep-2022
2023	Spring	15-May-2023	30-May-2023
	Summer	06-Jul-2023	19-Jul-2023
	Autumn	11-Sep-2023	26-Sep-2023

Table 6: Static detector survey effort in 2022

Map ID	Associated feature	Spring Deployment		Summer Deployment		Autumn Deployment	
		Unit	Run time	Unit	Run time	Unit	Run time
D.01	Open bog area beside drain that is adjacent to pasture used for silage.	WSS046	14 nights (8397min)	WSS025	13 nights (7003min)	WSS058	16 nights (12080min)
D.02	On pine tree adjacent to fire break/ride line in pine plantation.	WSS027	14 nights (8397min)	WSS027	13 nights (7003min)	WSS037	16 nights (12080min)
D.03	On spruce on edge of dense Sitka forestry also adjacent to drainage ditch.	WSS034	14 nights (8397min)	WSS052	13 nights (7003min)	WSS033	16 nights (12080min)
D.04	On alder lining Sitka spruce forestry track.	WSS029	14 nights (8397min)	WSS029	13 nights (7003min)	WSS032	16 nights (12080min)
D.05	Open bog.	WSS025	14 nights (8397min)	WSS061	13 nights (7003min)	WSS052	16 nights (12080min)
D.06	Open bog with sheep grazing in the area. Some regen pine trees in the area.	WSS031	14 nights (8397min)	WSS057	13 nights (7003min)	WSS056	16 nights (12080min)
D.07	On spruce with scrub bog surrounding. On the plantation edge *c.* 25m away.	WSS024	14 nights (8397min)	WSS033	13 nights (7003min)	WSS034	16 nights (12080min)
D.08	Sparse individual spruce near plantation.	WSS040	14 nights (8397min)	WSS030	13 nights (7003min)	WSS040	16 nights (12080min)
D.09	Open bog beside track where sheep are grazing. 300m east of the metal factory.	WSS028	14 nights (8397min)	WSS035	13 nights (7003min)	WSS029	16 nights (12080min)

Map ID	Associated feature	Spring Deployment		Summer Deployment		Autumn Deployment	
		Unit	Run time	Unit	Run time	Unit	Run time
D.10	On semi mature larch disjointed young forestry edge.	WSS032	14 nights (8397min)	WSS031	13 nights (7003min)	WSS059	16 nights (12080min)
D.11	Larch on Sitka mature spruce plantation edge with mature spruce plantation *c.* 50m away.	WSS026	14 nights (8397min)	WSS037	13 nights (7003min)	WSS063	16 nights (12080min)
D.12	Open bog near drain.	WSS054	14 nights (8397min)	WSS045	13 nights (7003min)	WSS030	16 nights (12080min)

Table 7: Static detector survey effort in 2023

Map ID	Associated feature	Spring Deployment		Summer Deployment		Autumn Deployment	
		Unit	Run time	Unit	Run time	Unit	Run time
D.01	Open bog area beside drain that is adjacent to pasture used for silage.	WSS007	15 nights (8273min)	WSS013	13 nights (7003min)	WSS047	16 nights (12080min)
D.02	On pine tree adjacent to fire break/ride line in conifer plantation.	WSS013	15 nights (8273min)	WSS083	13 nights (7003min)	WSS050	16 nights (12080min)
D.03	On spruce on edge of dense Sitka forestry also adjacent to drainage ditch.	WSS010	15 nights (8273min)	WSS006	13 nights (7003min)	WSS033	16 nights (12080min)
D.04	On a birch tree.	WSS006	15 nights (8273min)	WSS023	13 nights (7003min)	WSS009	16 nights (12080min)
D.05	Open bog.	WSS021	15 nights (8273min)	WSS021	13 nights (7003min)	WSS006	16 nights (12080min)
D.06	Open bog with sheep grazing with	WSS023	15 nights (8273min)	WSS010	13 nights (7003min)	WSS014	16 nights (12080min)

Map ID	Associated feature	Spring Deployment		Summer Deployment		Autumn Deployment	
		Unit	Run time	Unit	Run time	Unit	Run time
	some pine trees in the area.						
D.07	On spruce with scrub bog surrounding. On the plantation edge *c.* 25m away.	WSS018	15 nights (8273min)	WSS006	13 nights (7003min)	WSS004	16 nights (12080min)
D.08	Sparse individual spruce near conifer plantation.	WSS008	15 nights (8273min)	WSS067	13 nights (7003min)	WSS066	16 nights (12080min)
D.09	Open bog beside track where sheep are grazing. Adjacent to the old factory in the distance.	WSS014	15 nights (8273min)	WSS014	13 nights (7003min)	WSS011	16 nights (12080min)
D.10	On alder tree by forestry edge.	WSS009	15 nights (8273min)	WSS018	13 nights (7003min)	WSS084	No data[1]
D.11	Larch on Sitka mature spruce plantation edge mature spruce plantation *c.* 50m.	WSS012	15 nights (8273min)	WSS020	13 nights (7003min)	WSS020	16 nights (12080min)
D.12	Open bog near drain.	WSS016	15 nights (8273min)	WSS017	13 nights (7003min)	WSS017	No data[2]
D.13	On a birch tree in a pine woodland	WSS017	15 nights (8273min)	WSS084	No data	WSS049	16 nights (12080min)

2.9 Monitoring climatic of conditions

Monitoring climatic conditions during 2022 was undertaken through the deployment of an on-site fully automated weather station with 3G connectivity. The Davis Vantage Vue is a wireless integrated sensor suite weather station and was deployed to provide data on a real-time basis. This allows weather station functionality to be checked daily during the survey season and for action to

[1] Technical failure occurred in 2023 autumn deployment no data recorded

[2] Technical failure occurred in 2023 autumn deployment no data recorded

be taken if a station fails or there are concerns regarding the data. This obviates the need for a second, backup, weather station. The weather station collected the full range of weather data, including temperature, wind speed and rainfall, enabling surveyors to determine compliant deployment nights with the prescribed weather parameters (≥ 8°C at dusk, max. ground level wind speed of 5 m/s and minimal rainfall) as per the NatureScot *et al.*, (2021) guidance on weather data. Deployment periods can then be adjusted to ensure 10 nights of compliant data are captured.

In addition, site specific weather data can be useful for investigating the recorded patterns of site usage by bats, for instance exposed, open sites can receive an influx of foraging bats during nights that are warm and relatively still, especially towards the end of the summer and into the autumn, as bats disperse from maternity roosts (Woodrow per. obs.).

Weather conditions were monitored during 2023 using the public synoptic weather station in Belmullet.

Weather data for the three deployment periods during each year has been extracted and shown graphically in **APPENDIX 2: Weather data for each static deployment period** for spring, summer and autumn deployments, respectively.

2.10 Calibration and testing of recording equipment

Calibration and testing of recording equipment is required by the NatureScot *et al*. (2021) guidelines, and as a standard operating procedure Woodrow have a stringent schedule of testing all bat recording equipment prior to and during deployment in the field. Checks are logged in excel, providing an audit trail to ensure that all data can be relied on and form a robust and defendable data set. Unique numbering of static detectors, SD cards and microphones allows for reverse checking, if any issues arise, e.g., following a microphone failure. Checks undertaken include pre-deployment device setting including battery charge levels and pre-/post-deployment microphone sensitivity tests.

2.11 Data analysis

For data collected using Song Meter 2 (SM2BAT+) and Song Meter 4 (SM4BAT-FS) analysis of sound recordings was undertaken using Kaleidoscope software to confirm species (or genus for *Myotis* species calls or *Pipistrelle* species social calls) and exact number of bat passes for each transect survey or deployment. For data collected using the Batloggers, analysis of sound recordings was undertaken using BatExplorer software. Russ (2012) and Middleton *et al*. (2022) were used to aid in identification of bat calls during data analysis.

All sounds files were run through auto-identification and then manual verification was undertaken by Woodrow operatives. Recordings identified as noise were determined to fall outside of the recording parameters for the survey and were manually classified as noise. Common and soprano pipistrelles which Kaleidoscope determined to be a match ratio of 100% (every pulse recorded matched the species call parameters) were considered to be accurate to a level not requiring manual verification. Recordings in which multiple species were recorded were split into separate passes. The number of passes generated were considered to be species presence within a 15 second sound file.

Average bat passes per hour were generated and visualised in R as boxplots. Activity levels were assessed using the criteria applied by Matthews *et al.* 2016. This study examines the risk of European bats to wind energy developments in the UK. Activity levels are classified as in the study are summarised in **Table 8**. We have adapted this scale to be applied to average bat passes per hour. This adaptation assumes an average figure of 10 hours per night across the active bat season to determine the cut-off of 'high' activity. **Table 9** shows the adapted activity levels.

Table 8: Activity levels as per Matthews *et al.* 2016

Classification	Bat passes per night
Low	<3
Medium	3 - 49
High	≥50

Table 9: Activity level classification as per Mathews *et al.* 2016 adapted to hourly activity levels

Classification	Bat passes per hour
Low	<1.99
Medium	2 - 4
High	≥5