

Species	Mean visit length on hulled seed feeders (s)	Mean visit length on unhulled seed feeders (s)	Significance of time by food type
All	21.21±2.51	6.95±1.38	0.001
Chickadee	3.95±0.41	3.97±0.34	0.367
Goldfinch	89.37±12.43	52.16±15.59	0.073
Nuthatch	5.89±0.72	2.93±0.32	0.0001
Titmouse	20.82±4.00	2.82±0.39	0.0001

Table 1: Between-species differences in mean visit length and standard error. Nuthatches and titmice both had relatively low visit lengths and standard errors; titmice had a low mean visit length and standard error foraging at the unhulled-seed feeders, but a high mean visit length and standard error foraging at the hulled-seed feeders. In goldfinches, mean visit length and standard error were high at both feeders.

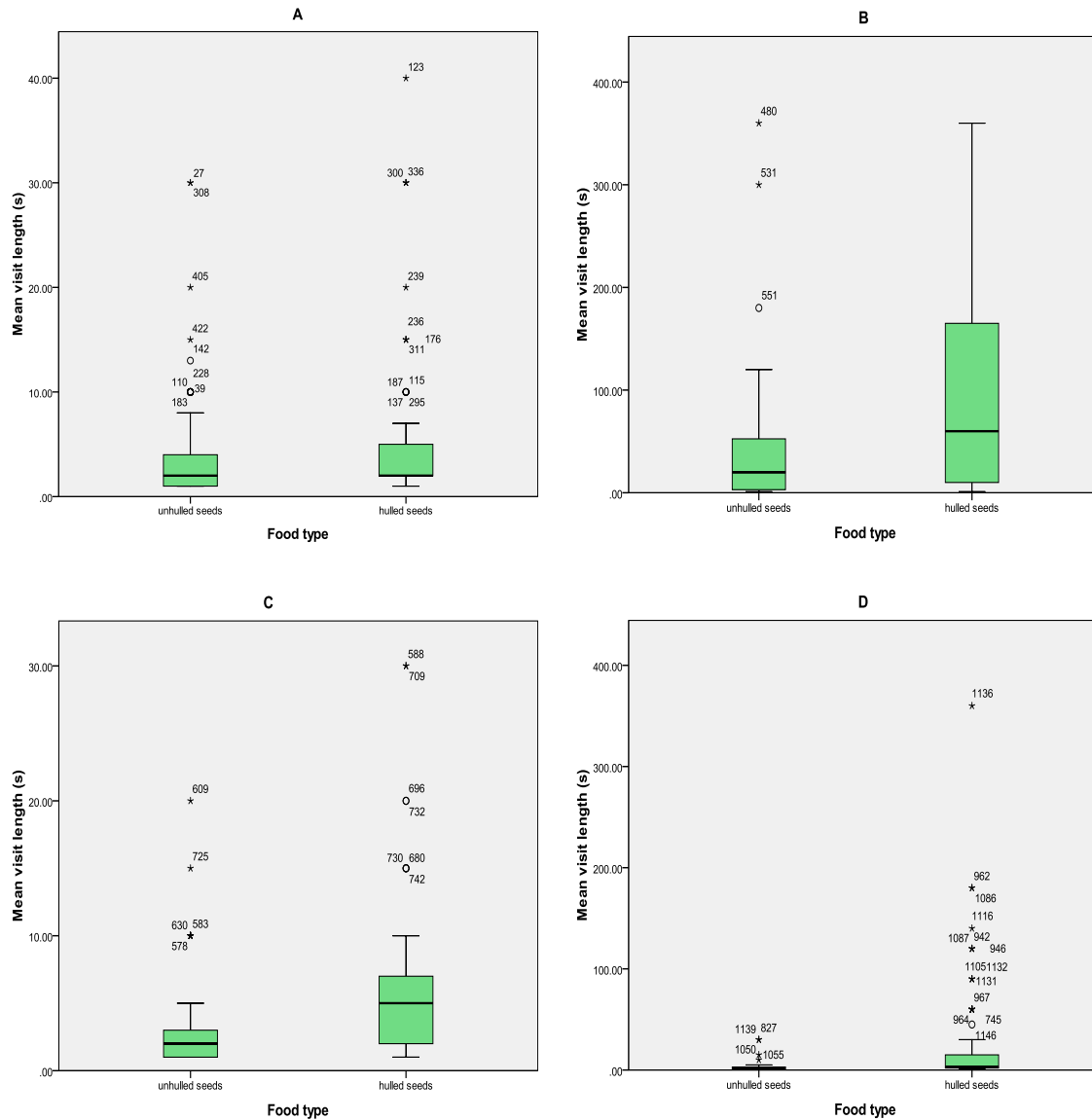


Figure 1: Differences in mean visit length between species with 95% confidence intervals. American goldfinches (B), white-breasted nuthatches (C), and tufted titmice (D) all spent significantly longer foraging at feeders containing hulled seeds. For black-capped chickadees (A), there was no difference in mean visit length between feeders of the two food types.

Species	Number of visits to hulled seed feeders	Number of visits to unhulled seed feeders	Chi-square	Significance
All	565	581	0.223	0.636
Chickadee	207	221	0.458	0.499
Goldfinch	80	44	10.452	0.001
Nuthatch	83	108	3.272	0.070
Titmouse	195	208	0.419	0.517

Table 2: Between-species differences in number of visits made to hulled and unhulled seed feeders. Neither feeder was visited more often when all species were included in the analysis, but American goldfinches visited the hulled-seed feeders slightly more often, and nuthatches visited the unhulled-seed feeders marginally more often. The other two species, chickadees and tufted titmice, showed no difference in the number of visits between food types. (Note: The total number of visits in Table 2 is higher than in Table 1 due to the fact that I was not always able to measure the length of each bird's visit, so the number of visits where time was measured is lower than the total number of visits.)

Species	Mean visit length in heavy cover	Mean visit length in open cover	Significance
All	12.75±1.74	16.40±2.55	0.222
Chickadee	3.42±0.34	4.05±0.42	0.238
Goldfinch	65.10±10.85	98.35±19.60	0.11
Nuthatch	3.40±0.39	5.43±0.73	0.008
Titmouse	8.93±1.99	16.89±4.35	0.075

Table 3: Mean visit length and standard error between cover types. White-breasted nuthatches spent significantly more time per visit foraging at feeders in open cover than at feeders in heavy forest cover. American goldfinches spent marginally more time foraging at feeders in open cover. For the other two species, tufted titmice and black-capped chickadees, there was no difference in mean visit length between the two cover types.

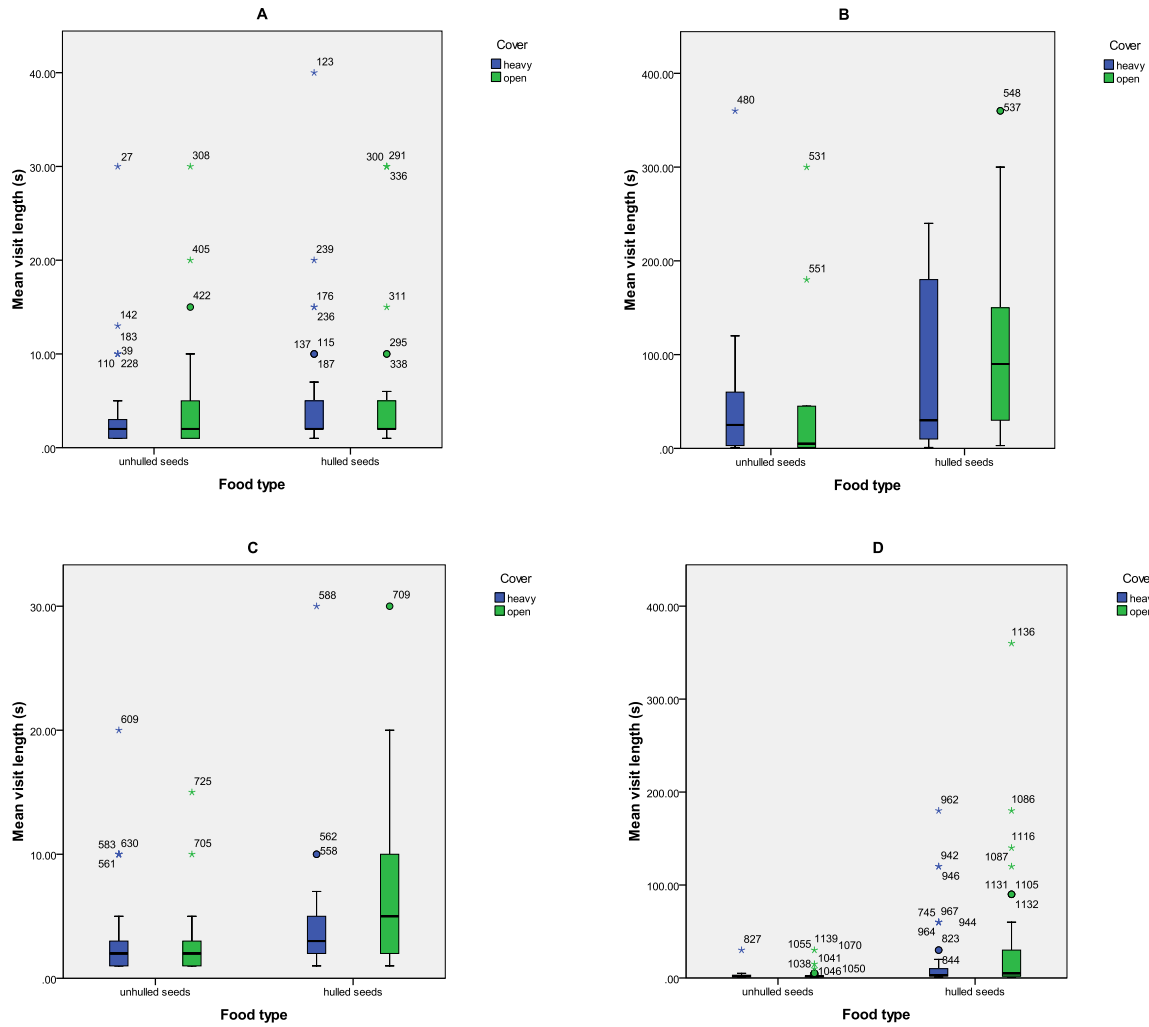


Figure 2: Differences in mean visit length between species and 95% confidence intervals. Chickadees (A) and goldfinches (B) did not spend longer foraging in the open as compared with heavy forest cover, regardless of the food type. Nuthatches (C) and titmice (D) spent significantly longer foraging at the hulled-seed feeder in the open than at the hulled-seed feeder under heavy forest cover, but showed no difference in mean visit length between the unhulled-seed feeder in the open as compared with the unhulled-seed feeder under forest cover.

Species	Exposed culmen (mm)	Bill depth (mm)
Chickadee	7.83±1.46	3.858±0.29
Goldfinch	9.28±0.46	6.1935±0.29
Nuthatch	20.55±1	3.9255±0.28
Titmouse	10.65±1.40	5.2975±0.20

Table 4: Bill lengths (exposed culmen) and depths with standard deviation.