Supplementary Material S1

Santos, Carvalho, and Mira (2011) provided estimates of daily carcass persistence probability (p_{Pd}) for a diverse array of vertebrate groups, reported as a mean with a 95% confidence interval and the number of carcasses analysed per group. Our vertebrate groups closely aligned with those described in the paper. Specifically, our "Amphibians" group comprises the "toads" and "salamanders" groups from the paper, while "Birds/Bats G1" combines "small birds" and "bats." Similarly, "Birds G2" encompasses "large birds" and "birds of prey".

To estimate daily carcass persistence probabilities from this Santos, Carvalho, and Mira (2011) groups to match our groups, we calculated a weighted average of the p_{Pd} values from the relevant groups. For example, to estimate p_{Pd} for our "Amphibians" category, we used the values for "toads" (p_{Pd} = 0.27 with 409 carcasses analyzed) and "salamanders" (p_{Pd} = 0.45 with 833 carcasses analyzed), resulting in a weighted average of p_{Pd} = 0.39 for "Amphibians". Furthermore, it's important to highlight that the paper does not provide estimates for the "Mammals G5". Nonetheless, based on our expertise, we contend that this group likely does not demonstrate carcass persistence bias within a monthly time period between successive roadkill surveys. In Table 1, we present the p_{Pd} for each vertebrate group.

Table 1. Daily carcass persistence probability for each vertebrate group

Vertebrate group	Daily carcass persistence probability
Amphibians	0.39
Reptiles G1	0.06
Reptiles G2	0.40
Reptiles G3	0.83
Birds/Bats G1	0.36
Birds G2	0.75
Mammals G1	0.39
Mammals G2	0.51
Mammals G3	0.78
Mammals G4	0.81
Mammals G5	1.00

We then used p_{Pd} for each vertebrate group to derive carcass persistence curves over several days by multiplying p_{Pd} by itself over days. We began with a proportion of roadkill persisting = 1 on day 0 and then decreased that proportion based on a given p_{Pd} – analogous to survival curves. Subsequently, we calculated the area under the curve delimited by day 0 and day D, where D was the day that cumulative probability of persistence is equal to 0.05, indicating that the carcass was nearly disappeared on the road. The relative area under the curve up to the

cumulative probability of persistence equal to 0.05, divided by the total area under and above the curve, is equivalent to p_P, which represents the average carcass persistence probability from day 1 to day D. Figure 1 illustrates the process of obtaining p_P.

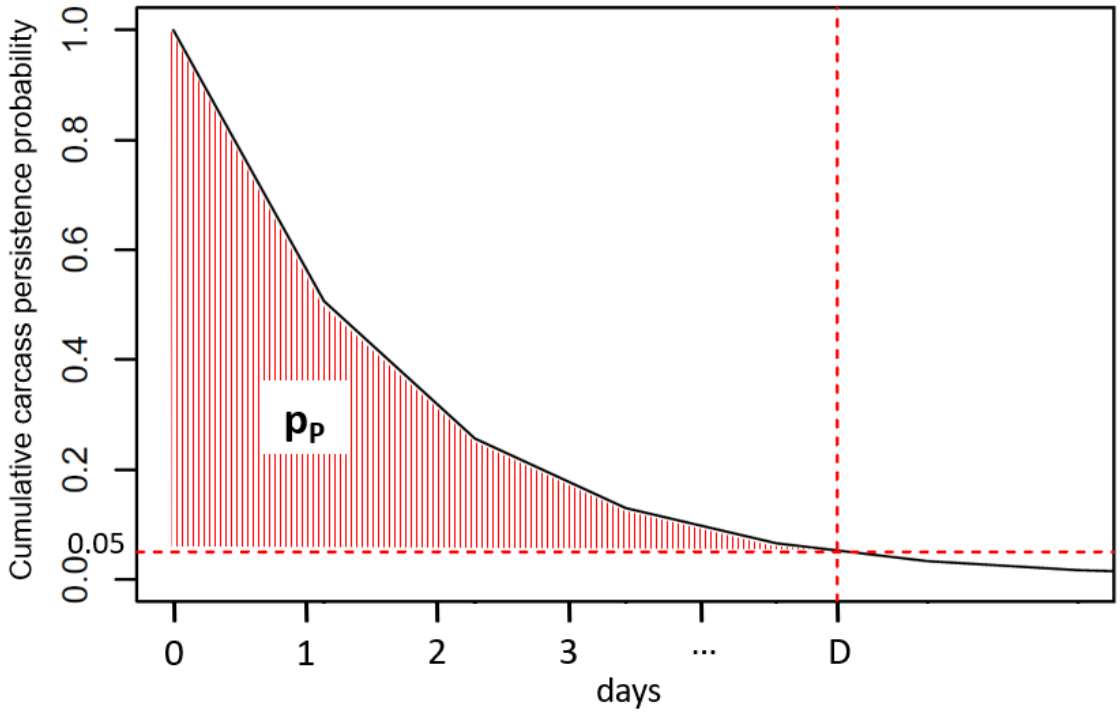

Figure S1.1. Process for calculating average carcass persistence probability (p_P). This diagram shows a carcass persistence curve for a given vertebrate group. The dotted lines mark the area where the daily carcass persistence probability reaches 0.05 on the Y-axis and the corresponding day D on the X-axis. The red shaded area under the curve, relative to the total area between the dotted lines, represents (p_P).

Bibliography

Santos, S. M., Carvalho, F., & Mira, A. (2011). How Long Do the Dead Survive on the Road? Carcass Persistence Probability and Implications for Road-Kill Monitoring Surveys. *PLOS ONE*, *6*(9), e25383. https://doi.org/10.1371/journal.pone.0025383