

The Life of a Carcass
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Recently during our conference calls and meetings we have discussed the interplay between carcass removal rates (sometimes referred to as scavenging rates) and searcher efficiency. I wanted to further explore these connections by looking at the changes that can occur over time in the “life” of a carcass.

Graphs 1-5 depict patterns based on hypothetical data, but which I think typify our fatalities. The patterns in Graphs 1-5 span 90 days, and depict some “life events” such as intact status, scavenging and removal.

Graph 1 Scavenging Scenario: This graph depicts an intact (whole) carcass that after 7 days is scavenged. The scavenging event results in the spread of carcass sign (feather, limbs, etc.) over a larger area increasing the chance of detection by a searcher. The carcass sign is spread yet further by abiotic factors (primarily wind) peaking at day 16. After day 16 the carcass sign wanes, feathers blow away and/or there may be some additional scavenging. Eventually a small amount of carcass sign persists that is very difficult to detect this carcass sign dwindles slowly and some sign remains after 90 days.

Graph 2 Removal Scenario: This graph depicts an intact carcass that after 7 days is removed (likely by a scavenger). The removal event results in the absence of all carcass sign reducing the probability of detection to zero.

Graph 3 Non-scavenging Scenario: This graph depicts an intact carcass that after 13 days, due to the processes of decay, starts to lose cohesion (feathers begin to blow in the wind). This decay results in the spread of carcass sign but is generally limited to feathers at first. Because the carcass sign is only spread by abiotic factors and not scavengers the spread is gradual and not severe resulting in a relatively low peak in detection probability. After 34 days the carcass sign wanes, but some sign remains after 90 days.

Graph 4 Late Scavenging Scenario: This graph depicts an intact carcass that after 13, days due to the processes of decay, starts to lose cohesion (feathers begin to blow in the wind). This decay results in the spread of carcass sign but is generally limited to feathers at first. Because the carcass sign is only spread by abiotic factors and not scavengers the spread is gradual and not severe resulting in a relatively low peak in detection probability. After 25 days the carcass is scavenged. In this graph a partial removal is depicted, reducing the amount of carcass sign and the probability of detection. You can imagine a scavenging event that could spread the carcass further instead of reducing it, a scenario similar to graph 1. In this graph (graph 4) the remaining carcass sign wanes and is removed after 52 days by abiotic processes.

Graph 5 Predation or Day One Scavenging Scenario: This graph depicts an initially predated or scavenged carcass. The carcass sign is at peak spread and the probability of

detection will now wane largely due to abiotic factors. The carcass sign is removed after 7 days.

- Our search day is random in relation to the day of death for a fatality. The probability of detection for any carcass is greatly influenced by which days in a 90 day period our crew happen to search a turbine area that the carcass inhabits as well as which “life cycle” (represented by the five graphs) the carcass is exhibiting. There could be (and probably are) many additional life cycles as well as modification to the five depicted here that a carcass can exhibit. But I believe that understanding these interactions between carcass removal rates (or carcass removal functions) and searcher efficiency is an important goal to attain to further our efforts to understand and calculate mortality estimates.



