

Meeting Notes | Nov 4, 2009 and Nov 6, 2009

Altamont SRC Subcommittee meeting

Participants:

Shawn Smallwood (SRC Subcommittee)
Julie Yee (SRC Subcommittee)
Douglas Leslie (ICFI)
Jesse Schwartz (ICFI)
Brian Karas (BRC)

Subject: Adjustment Factors

Purpose

During the September 2009 SRC meeting, the SRC agreed to recommend that the number of small fresh carcasses and feather spots be adjusted by a correction factor based on the 48-Hour Search Interval (KB) Study (M32), instead of using Smallwood (2007) rates. The SRC also recommended that carcasses and feather spots be handled differently, but have not yet recommended on how to derive the appropriate rates for carcasses and feather spots. The purpose of the SRC subcommittee meeting was to discuss the issues surrounding the derivation of these rates. The central concerns include:

- 1) Feather piles will not be removed by vertebrate scavengers, so should not be expected to be represented by the same scavenger removal rates as summarized in Smallwood (2007) because the scavenger removal trials summarized by Smallwood did not place feather piles, nor did they specifically track the fates of feather piles;
- 2) The KB study demonstrated that feather piles disappear more slowly and at a more linear rate, which is suspected to be indicative of abiotic removal processes, such as by wind and rain;
- 3) Carcasses (i.e., relatively intact body parts including flesh and bone) disappear at different rates than feather piles within the timeframe of typical periodic searches performed by the fatality monitoring team, and therefore have different adjustment factors;
- 4) A relatively large number of Burrowing Owl fatalities are evidenced as feather piles, creating great potential to incorrectly estimate fatalities calculated from feather piles; and
- 5) Carcasses can and do transition to feather piles, and we rarely know when they have done so, but the KB study and other sources of evidence suggest that many of the feather piles being found had transitioned quickly, i.e., within 2 days of death. This can lead to a misapplied adjustment for unknown numbers of fatalities.

Meeting Summary and Results

The initial discussions between the MT and the SRC separated fatality evidence into three categories: whole carcasses, partial carcasses, and feather piles. Due to relatively small differences between the whole and partial carcass categories, the MT and the subcommittee decided to combine whole and partial carcasses and simplify their discussion to two categories: carcasses and feather piles.

The MT and subcommittee agreed that an important premise of the discussion is to recognize that all fatalities were initially carcasses. The notion of a separate disappearance rate for feather piles is based on those fatalities that quickly transition from carcasses to feather piles, i.e., within 2-days after death. Carcasses that transition to feather piles later than 2 days after death are assumed to follow the scavenger removal rates summarized in Smallwood (2007), but those that quickly transitioned should not be expected to follow the same rate because scavengers are no longer removing the remains.

The MT and SRC subcommittee discussed several options for adjustment factors:

- 1) Adjust fatalities respectively by their condition when found. In other words, adjust carcasses using carcass removal rates and adjust feather piles using feather piles rates. No special consideration is given to transitions.
- 2) Adjust carcasses using carcass removal rates, and do not adjust feather piles.
- 3) Same as 1), except refine the feather piles rate to account for the proportion of fatalities that transitioned from a carcass.
- 4) Combine fatalities to derive one set of rates that are applied the same to carcasses and feather piles.

The MT and subcommittee discussed the pros and cons of each of these options, as follows:

Options 1)

Pros. Option 1 is simpler to calculate than option 3, and more robust than option 4 for situations in which the ratio of carcasses to feather piles varies widely from the KB study.

Cons. Carcasses that transitioned to feather piles prior to detection will be adjusted using a feather rate when it should be adjusted using a carcass rate. This will lead to underestimation biases. Julie Yee presented an example (P141).

Option 2)

Pros. Option 2 has the same pros as option 1.

Cons. Unadjusted feather piles will lead to even greater underestimation biases than option 1.

Option 3)

Pros. Option 3 has the same pros of option 1, without the cons of option 1.

Cons. This requires developing estimates of transition probabilities, and the data is likely underpowered. The KB study recorded 36 fresh fatalities, including only 5 transitions within the first 30 days of the fatality. Small sample variation could lead to greater errors than the biases noted in options 1, 2 and 4.

Option 4)

Pros. Transitions are not an issue since carcasses and feather piles are lumped into one category. Differences in disappearance rates between carcasses and feather piles are handled by averaging among carcasses and feather piles in proportion to their occurrence.

Cons. Various data suggest that the ratios of carcasses to feather piles vary substantially, especially with Burrowing Owls, so the average rate derived from the KB study might not apply to the rest of the Altamont.

For the next draft monitoring report, the MT will calculate options 1, 2 and 4 for Burrowing Owls and possibly American Kestrels so that the full SRC can discuss and recommend the approach to use for all other species. Two approaches for implementing option 3 were discussed, involving the estimation of transition probabilities; one was a formal model and the other was a cruder and more empirical approach for estimating transition probabilities. The group did not agree on a clear strategy for implementing option 3, and either way there was the overriding concern about sample size. Since the SRC has already recommended that the report should break down the fatality estimates by carcass and feather piles, and adjust feather piles as well as carcasses, then the MT will calculate option 1 for all other species as a default.