

Red-winged blackbirds are sexually dimorphic. Males have a bright red shoulder patch, while females are a uniform dull brown. You are interested in determining whether the red patch is important in male competition for territories. You capture males, and blacken the shoulder patch of some with hair dye, others are changed to yellow with hair dye, and on still others (controls) you use a colorless rinse so that the color is unchanged. What alternate hypothesis best describes your predictions?

- A. Birds with blackened patches or yellow patches will be less likely to hold a territory compared to controls.
- B. Birds with blackened shoulder patches will be less likely to hold a territory compared to ones with yellow shoulder patches or controls.
- C. Birds with blackened shoulder patches will father fewer offspring than ones with yellow shoulder patches or controls.
- D. Birds with blackened shoulder patches will mate with fewer females than ones with yellow shoulder patches or controls.

In addition to the red shoulder patch, male redwing blackbirds also sing to defend their territories from other males. If the size of the shoulder patch is important, which of the following is most likely to be true?

- A. Shoulder patch size and song duration will be negatively correlated.
- B. Shoulder patch size and song complexity will be positively correlated.
- C. Shoulder patch size and song duration will be positively correlated only if the male has a territory.