

The Audubon Society of Denver  
9308 S. Wadsworth Boulevard  
Littleton, CO 80128

Lois Webster Fund,

Populations with skewed sex ratio may be detrimental for species persistence. Heavily skewed sex ratios can reduce the overall reproductive output, effecting overall population growth and demographics. Studies trying to determine causes of population declines in many grassland bird species have mainly focused on avian-habitat associations, but there may be additional biological factors driving these populations in a downward trend.

The mountain plover (*Charadrius montanus*) is among the grassland species experiencing population declines. Canada, Mexico, and many US states list this species as one of conservation concern. The mountain plover is a migratory upland shorebird found in xeric habitat on the North American continent. Over half of the population breeds in eastern Colorado in areas with disturbance including areas with large amounts of bare ground. Mountain plovers have a unique mating system. Males and females each provide care for separate nests and uniparental care is continued through chick rearing. Due to this unique mating strategy, a skewed sex ratio has potential to be adaptive for mountain plovers. To explore potential reasons for observed declines in the mountain plover population, I examined the early life stages to determine when a skewed sex ratio arises, as well as what role it plays in the mountain plover population.

My results suggest that a skewed sex ratio in the mountain plover population is not arising in the early life stages. Sexing results over the course of the three year study yielded that production of males and females were in equal proportions (0.99:1;  $n=120$  females,  $n=121$  males). Hatching rates between the sexes were equal. Survival of males and females daily survival rates over a 30-day period (approximate time of fledging) was not significantly different between males (0.90, SE=0.02, CI=0.86, 0.93) and females (0.93, SE=0.01, CI=0.91, 0.94). These results suggest that a sex ratio bias is occurring in this population at a later life stage. The lack of evidence for sex specific survival variation during the egg and chick also suggest that this is not necessarily an adaptive trait for this species. Further research on stages later in this species life cycle is necessary to fully understand the role of the skewed sex ratio in this species population.

I want to thank everyone again at the Lois Webster Fund for helping fund my graduate research. If you have any additional questions or wish to discuss my research in more detail feel free to contact me at any time.

Sincerely,

Maggie Riordan  
Graduate Student  
University of Montana