
Appendix L. Response to management by Chestnut-collared Longspur.

Responses to management type, i.e., cattle grazing, unless otherwise noted, fire, and mowing/haying, by Chestnut-collared Longspur breeding in the grasslands of the Northern Great Plains.

Management Type	Response to Management ^a	Region	Grassland Type	Reference
Grazing				
Heavy	+	AB	Mixed-grass	Owens and Myres (1973)
Season long	+			Ranellucci (2010), Ranellucci et al. (2012)
Twice-over rotation	-			
Light/Moderate Summer grazing	+	CO	Shortgrass	Giezentanner (1970)
Heavy	0			Ryder (1980)
Rest-rotation	0	MT	Mixed-grass	Golding and Dreitz (2017)
Season-long	0			
Grazing and Mowing: 1 year post haying	-	ND		Kantrud (1981)
Moderate/heavy grazing	+(max)			
Light grazing	-			
Grazing and Fire: Burned 4 times in 15 yrs	+			
Graze: Season long	-			
Ungrazed (long term)	-			Madden et al. (1999)
Heavy/Extreme	+			
Light/Moderate	-			
Heavy/Extreme	+	SK		Salo et al. (2004)
Light/Moderate	-			
Grazing and Fire: 1 yr post burn	+			
Unburned, Ungrazed	-			
Burned, Grazed	S			
Burned, Ungrazed	S			
Unburned, Grazed	S			
2-3 yrs	+			
>15 yrs	-			
Grazing: Cattle/Bison grazing	S			
Moderate	+			
Grazed	+(3x greater)			
Ungrazed	-			Pipher et al. (2016)
				Sliwinski (2011)
				Lusk (2009), Bleho (2009)

Management Type	Response to Management ^a	Region	Grassland Type	Reference
Grazing and Fire: Grazing	+	SK	Mixed-grass	Richardson et al. (2014)
Burn (1-4 yrs post burn)	+			
Burned, Grazed	-			
Burned, Ungrazed	-			
Mowing/Haying				
Grazing and Mowing: 1 year post haying	-	ND	Mixed-grass	Kantrud (1981)
Moderate/heavy grazing	+ (max)			
Light grazing	-			
Fire				
Grazing and Fire: Burned 4 times in 15 yrs	+	ND	Mixed-grass	Madden et al. (1999)
Graze: Season long	-			
Ungrazed (long term)	-			
Spring	+ short term	SD		Huber and Stouter (1984)
1 yr post burn	-	SK		Maher (1973)
2 yrs post burn	+ (abundance equal to ungrazed)			
Grazing and Fire: Grazing	+			Richardson et al. (2014)
Burn (1-4 yrs post burn)	+			
Burned, Grazed	-			
Burned, Ungrazed	-			

^a = Grazing effects on abundance: + increase, - decrease, 0 = no effect, S = similar, as reported by authors. Effects refer to abundance, unless otherwise noted above.