

Common Grasshoppers of Montana Cropland and Rangeland  
Ruth O'Neill

Several hundred grasshopper species occur in Montana at low and high elevations, in meadows, shrubland, irrigated and dryland crops, fencerows, roadsides, and rangeland or pastureland. All life stages have chewing mouthparts and feed on plants. Most grasshoppers are of no economic significance. Some grasshopper activity, such as feeding on weeds and weed seeds, is actually beneficial. *Hesperotettix viridis*, for example, feeds exclusively on snakeweed. Grasshoppers also scavenge and break down enormous quantities of livestock manure on range and pasture lands.

Grasshoppers are subdivided into three major groupings. "Slant-faced" species have inclined faces and clear wings; "band-winged" species are usually heavy-bodied and make a clattering noise in flight; "spur-throated" species have a spine between the front legs. Some slant-faced and band-winged grasshoppers specialize on rangeland, and have mandibles with cutting edges for slicing grass foliage. Spur-throated species often have mixed diets of grasses and leafy forbs, and have mandibles with more molar-like grinding surfaces. This group includes *Melanoplus* grasshoppers, the most common economic pests of small grains and vegetables in Montana.

Some Common Grasshoppers of Montana Croplands and Rangelands

	Common Name	Host Plants	Food Types	
			Grass	Grass /Forb
<b><i>Spur-throated grasshoppers:</i></b>				
<i>Melanoplus bivittatus</i>	Two-striped	Small grains, alfalfa, corn		X
<i>M. differentialis</i>	Differential	Small grains, corn, alfalfa, vegetables, fruit trees		X
<i>M. femurrubrum</i>	Red-legged	Small grains, alfalfa, clover, corn, vegetables		X
<i>M. gladstoni</i>	Gladston	Winter wheat in fall		X
<i>M. infantilis</i>	Little spur-throated	Rangeland grasses and forbs		X
<i>M. occidentalis</i>	Flabellate	Rangeland grasses and forbs		X
<i>M. packardii</i>	Packard	Small grains, alfalfa		X
<i>M. sanguinipes</i>	Migratory	Small grains, alfalfa, corn, clover, vegetables, ornamentals		X
<i>Phoetaliotes nebrascensis</i>	Large-headed	Rangeland grasses, winter wheat in fall	X	
<i>Xanthippus corallipes</i>	Red-shanked	Rangeland grasses, alfalfa		X
<b><i>Slant-faced grasshoppers:</i></b>				
<i>Ageneotettix deorum</i>	White-whiskered	Rangeland grasses	X	
<i>Amphitornus coloradus</i>	Striped	Rangeland grasses	X	
<i>Aulocara elliotti</i>	Big-headed	Rangeland grasses	X	
<i>Aulocara femoratum</i>	White-crossed	Rangeland grasses	X	
<i>Chorthippus curtipennis</i>	Meadow	Rangeland grasses	X	
<i>Cordillacris occipitalis</i>	Spot-winged	Rangeland grasses	X	
<i>Mermiria bivittata</i>	Two-striped slant-faced	Rangeland grasses	X	
<i>Metator pardalinus</i>	Blue-legged	Rangeland grasses	X	

<i>Phlibostroma quadrimaculatum</i>	Four-spotted	Rangeland grasses	X
<b><u>Band-winged grasshoppers:</u></b>			
<i>Camnula pellucida</i>	Clear-winged	Rangeland grasses, small grains	X
<i>Dissosteira carolina</i>	Carolina	Rangeland grasses, wheat, alfalfa, corn	X
<i>Dissosteira longipennis</i>	High plains	Rangeland grasses	X
<i>Trachyrachis kiowa</i>	Kiowa	Rangeland grasses	X

Grasshopper eggs are laid in clusters underground in bare patches of soil, each cluster surrounded by a frothy substance that dries and hardens into a protective finger-shaped pod. Most species overwinter as eggs or very young larvae in the egg pods. A few species hatch late in the summer and overwinter as late-stage nymphs under debris, molting into adults early the following spring. Nymphs resemble adults, although color patterns are often dramatically different from the adult stage. Nymphs, however, do not have developed wings or genitalia. Grasshoppers have five immature stages before reaching adulthood.

In winter wheat, an economic treatment threshold during the fall growing season of seven to eight grasshoppers per square yard is recommended. In spring wheat the threshold can be lower; the presence of clear-winged grasshoppers requires careful monitoring of crop damage. On rangeland, eight or more grasshoppers per yard may warrant treatment.

Chemical controls vary widely by habitat / crop. Nymphal grasshoppers can be safely controlled in many situations using Dimilin, an insect growth regulator with low mammalian toxicity and low non-target effects. Dimilin is not effective against adult grasshoppers. Read label carefully for specific information.

#### References:

- Capinera, J. L. et al. 2004. Field Guide to Grasshoppers, Katydid, and Crickets of the United States. Cornell University Press, Ithaca NY, 249 pp.
- Isley, F. B. 1944. Correlations between mandibular morphology and food specificity in grasshoppers. Ann. Entomol. Soc. Amer. 37:47-67.
- Pfadt, R. E. 1988. Field Guide to Common Western Grasshoppers. USDA APHIS Wyoming Agricultural Experiment Station, Bull. 912., University of Wyoming, Laramie WY.