

2009 Grasshopper and Mormon Cricket Overview



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List of Abbreviations

UDAF – Utah Department of Agriculture
USDA – United States Department of Agriculture
PPQ - Plant Protection and Quarantine
MCGH - Mormon cricket/grasshopper
APHIS - Animal and Plant Health Inspection Service
USFS – United States Forest Service
USFWS – United States Fish and Wildlife Service

Mission Statement

UDAF Mission Statement: Protect and promote Utah agriculture and food

Insect Program Mission Statement: Protect Utah agriculture, food, and quality of life from losses due to insects.

Vision Statement

The Insect Program vision is to work with all partners and stakeholders to protect agriculture and quality of life from insect losses.

Values Statement

The Insect Program values leaders and team members with high professional and ethical standards, who work together and with partners to produce innovative, current, and practical initiatives to survey and manage insect populations in Utah.

Goal: Insect Control

Many tools are available to survey and estimate insect populations. For endemic insects whose populations vary with conditions, an economic threshold can be set to determine when treatment is advisable. These treatments may involve chemical pesticides, biocontrols, or cultural methods.

Strategy: Detection Networks

Action: Work with partners to stay current on encroaching pest species and on technology to be able to detect them. Predict likelihood, means, and high risk points of introduction to take appropriate action.

Strategy: Predictive Models

Action: Predict risk and severity of insect outbreaks using models that include habitat and weather data. Use this information to prioritize projects.

Strategy: Threshold Protocols

Action: Use protocols that integrate pest potential and economic thresholds to determine if and when treatment is necessary for suppression or eradication.

Strategy: Effective Chemical Controls

Action: Apply the most effective and rational chemical controls while minimizing impact on the environment and non-target species.

Action: Set objectives for each project, and conduct post-project reviews to determine if project objectives were met.

Strategy- Research to Establish Biocontrols

Action: Keep current with entomology community on new biocontrol organisms available for research or use. Evaluate these and other methods to use the most rational treatments.

Control Programs–Private or Cooperative?

Grasshoppers and Mormon crickets are native insects of the ecosystems of the United States (U.S.). They play an important role, serving as food for wildlife and contributing to nutrient cycling on rangelands. There are over 700 species of grasshoppers in the U.S. The two major species affecting croplands in Utah are the migratory grasshopper (*Melanoplus sanguinipes*) and the clearwinged grasshopper (*Camnula pellucida*). Grasshopper and Mormon cricket (*Anabrus simplex*) outbreaks occur throughout U.S. states that lie west of the 100th meridian, and they have the potential to significantly impair Utah’s \$343 million forage crop industry.

Two types of Mormon cricket/grasshopper (MCGH) control programs were used in 2009 to combat grasshopper and Mormon cricket populations. The details of each program are listed below:

UDAF Cost Share Program for Private Land

- Utah pays 90% of the cost to control grasshoppers or Mormon crickets on privately owned rangeland and cropland.
- After being qualified to participate by UDAF, Utah State University, or USDA personnel, participants spray their land with pesticide labeled for use on grasshoppers.
- Participants pay applicator and submit a state contract for reimbursement.

USDA APHIS PPQ Cooperative MCGH Control Program

- Federal land management agencies must request treatment by submitting a letter to USDA APHIS PPQ.
- If funding is available, APHIS pays for the following costs: 100% on federally managed lands, 50% on state land, and 33% on private rangeland.
- If funding is available, UDAF pays for the following costs (based on 2009 cost share ratio): 50% on state land and 63% on private rangeland.
- For private rangeland, private landowners form a rancher committee that pays the remaining 4% of the cost.
- APHIS requires the private share (4%) to be put into an escrow account before the project is let out for bid.
- Cropland is not allowed to be included in control areas.
- Project subject to USFWS’s negotiated environmental restrictions.
- Project is conducted cooperatively by APHIS and UDAF personnel.

Looking Back-2009 at a Glance

Infested Acreages

Mormon Cricket

- 54,189 acres statewide
- 44% increase from 2008

Grasshopper

- 871,086 acres statewide
- 276% increase from 2008

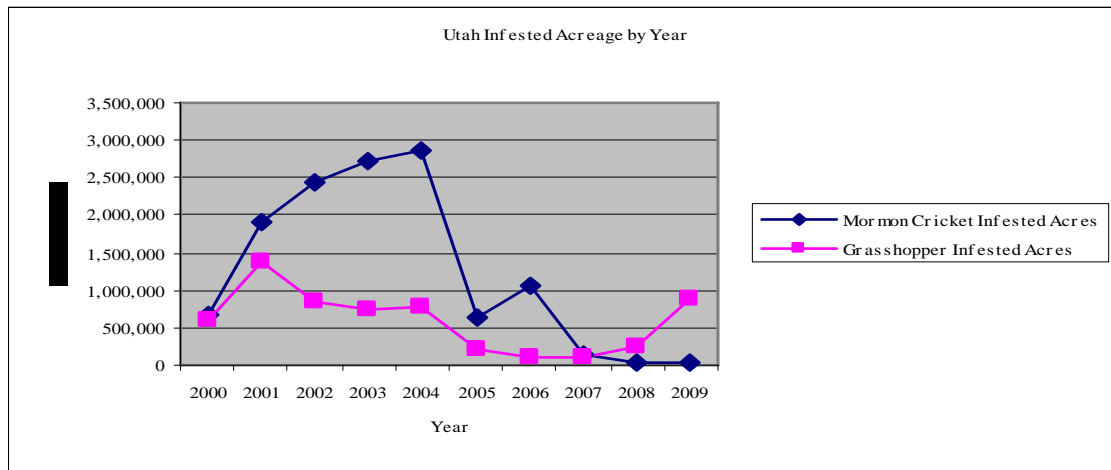


Figure 1. Estimated MCGH-infested acreage by year in the state of Utah.

Treatment Acreages

Mormon Cricket

- Baiting on private land occurred in Box Elder, Juab, and Millard counties.

Grasshopper

- Private: 157,876 acres statewide.
- Tribal: 10,648 acres in Duchesne and Uintah counties.
- BLM: 5,022 acres in Millard, Sanpete, and Tooele counties.
- DOD: 500 acres in Tooele County.
- SITLA: 1,808 acres in Millard and Sanpete counties.

Acreages by Treatment Type

- Aerial: 175,354 acres statewide.
- Ground: 3,300 acres statewide.

Estimated Treatment Cost

- Private: \$100,176
- UDAF: \$752,209
- APHIS: \$55,200

Looking Ahead–2010 Priorities

Grasshopper populations in 2009 increased 276% from the previous year. Based on the 2009 rangeland insect survey, UDAF and APHIS agree that numbers will continue to increase in 2010. As such, residents with grasshopper concerns have organized fall meetings to plan control programs. In 2010 Mormon cricket populations in Juab, Millard, and Tooele counties are predicted to threaten valuable cropland.

In order to effectively meet the needs of Utah residents in 2010, the following objectives are proposed:

1. Issue a request for treatment on USDA Forest Service (FS)-administered land to APHIS

Action: Present 2009 survey information to the FS and request a letter asking USDA APHIS PPQ to treat for Mormon crickets and grasshoppers on the Uinta and Fish Lake Forest Service Districts.

2. Increase awareness of grasshopper management practices on private land.

Action: Present grasshopper IPM at UDAF Pesticide Applicator Training Workshops in the fall of 2009.

3. Organize ranchers in areas where 2010 outbreaks are predicted

Action: Organize fall meetings in Sanpete and Uintah counties.

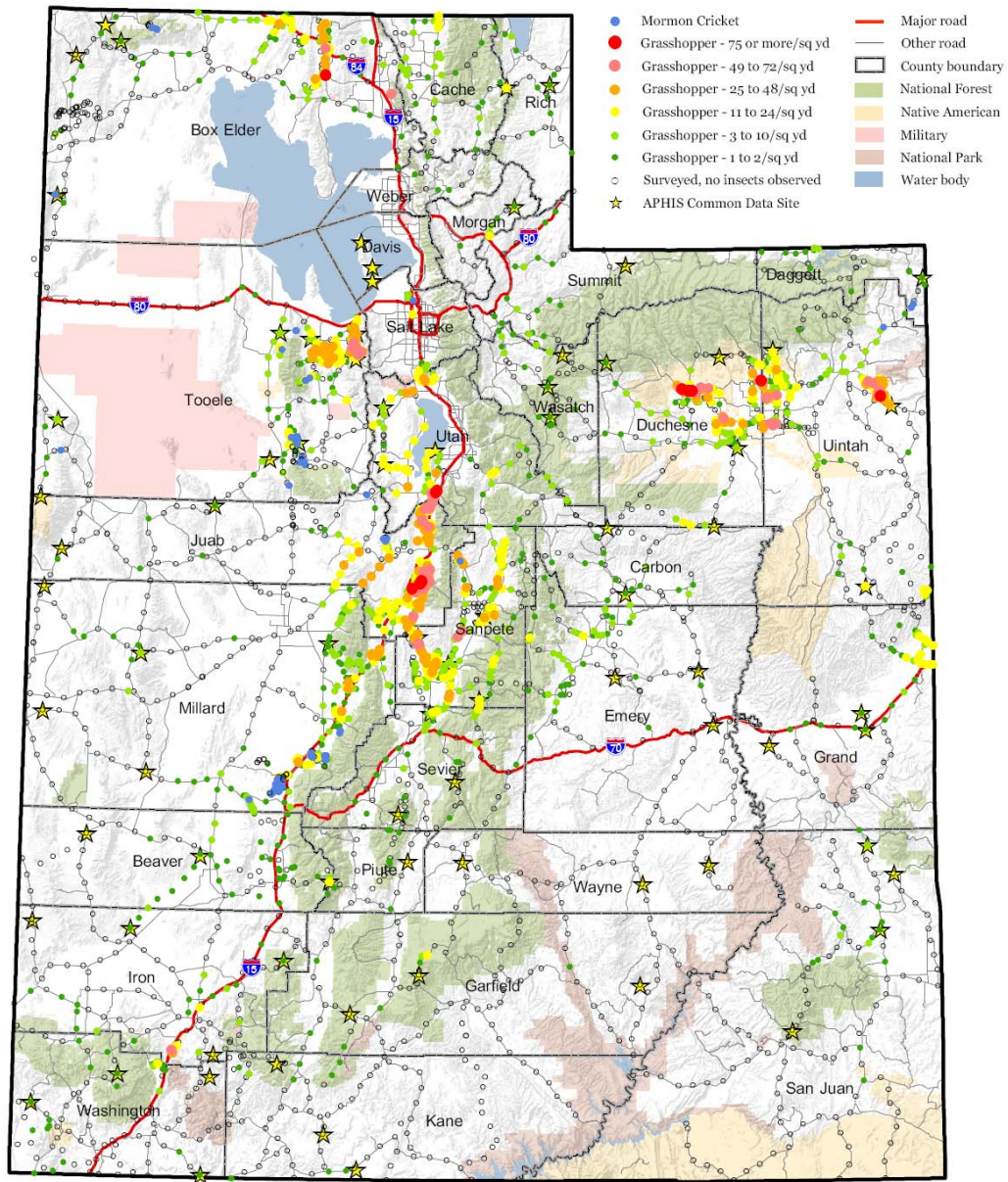
4. Identify overall needs of the Insect Program to target areas where we can improve in 2010.

Action: Organize an Insect Program fall training to look at what our staff thought worked well and identify areas for improvements.

Action: Reach out to cooperators and the public for suggestions during the fall Mormon Cricket and Grasshopper Decision and Action Committee meeting.



2009 Utah Grasshopper and Mormon Cricket Survey



UDAF GIS August 2009

Figure 2. 2009 Utah grasshopper and Mormon cricket survey.



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Table 1. Grasshopper Infested Acreage By Year

County	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Beaver	11,000	13,800	4,000	7,000	4,420	5,880	1,800	3,013	5,315	5,863
Box Elder	55,000	120,400	120,000	94,710	6,570	15,200	15,270	13,644	18,918	62,151
Cache	19,000	64,500	17,000	2,200	26,380	2,170	10,490	10,616	3,856	22,442
Carbon	12,300	56,100	21,600		2,700		5,860	1,279		3,733
Daggett	600	4,900		8,530	7,750	1,900		7,769	1,280	1,568
Davis				2,530		3,010				
Duchesne	1,300	82,400	8,700	70,800	230,190		420	3,838	19,375	85,391
Emery	3,500	10,400	6,400		1,710	12,680	21,210	1,652	4,329	22,401
Garfield	6,800	10,900	4,200	52,560	13,780	24,450		2,216		2,474
Grand									1,445	19,384
Iron	7,000	5,000	12,300	24,540	26,760	17,140	2,780	3,203	2,560	12,316
Juab	33,000	174,000		21,030	8,060	2,250		4,670	28,754	121,893
Kane	10,300	1,300		16,710	13,680	7,570				1,280
Millard	52,500	216,800	8,950	6,500	3,590		1,280	2,559	25,599	83,063
Morgan	19,000	63,100		2,530	25,710		5,530	6,989	136	2,770
Piute	21,000	18,200	32,600	40,310	5,990	13,870	2,560	5,035	3,135	395
Rich		12,400		32,140	68,830	4,000				2,192
Salt Lake				2,530		2,530		2,479		8,265
San Juan	23,000	3,900	2,500					1,279	7,515	3,840
Sanpete	157,000	183,500	268,400	142,680	118,920	56,470	3,840	3,838	28,749	129,329
Sevier	58,000	31,000	70,500	78,000	22,870	16,850	3,830	12,417	4,789	16,807
Summit	10,000	3,600	2,550	12,630	33,870		1,280	2,136	2,560	6,822
Tooele	5,700	74,600	161,800	39,000	2,550	16,020	6,170	3,838	9,444	90,900
Uintah	36,000	71,200	53,500	25,750	100,950	12,670	20,510	9,319	17,692	94,457
Utah	29,000	56,400	8,500	15,150	16,440		1,280	2,558	6,782	60,751
Wasatch	3,000	65,600	7,000	17,540	25,250			1,279		5,703
Washington		44,100	7,100	150	2,530		4,270	5,752	38,487	4,896
Wayne	2,000	2,000		10,430						
Weber	17,000						3,690	1,119	1,144	
Total	593,000	1,390,100	817,600	725,950	769,500	214,660	112,070	112,497	231,864	871,086



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Table 2. 2009 Grasshopper Acreage By County

County	Federal	State	Private	Total
Beaver	4,253	473	1,137	5,863
Box Elder	1,648	661	59,842	62,151
Cache	839	4	21,599	22,442
Carbon	1,510	78	2,145	3,733
Daggett	585		983	1,568
Davis				
Duchesne	23,433	921	61,037	85,391
Emery	6,567	1,701	14,133	22,401
Garfield	2,474			2,474
Grand	15,959	2,215	1,210	19,384
Iron	2,262	580	9,474	12,316
Juab	29,257	9,671	82,965	121,893
Kane	65		1,215	1,280
Millard	24,022	4,241	54,800	83,063
Morgan		3	2,767	2,770
Piute	395			395
Rich	310	451	1,431	2,192
Salt Lake			8,265	8,265
San Juan	3,040	35	765	3,840
Sanpete	33,477	9,941	85,911	129,329
Sevier	10,458	1,990	4,359	16,807
Summit	570	395	5,857	6,822
Tooele	38,148	4,911	47,841	90,900
Uintah	46,536	5,716	42,205	94,457
Utah	8,434	6,315	46,002	60,751
Wasatch	1,588	249	3,866	5,703
Washington	887		4,009	4,896
Total	256,717	50,551	563,818	871,086



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Table 3. Mormon Cricket Infested Acreage By Year

County	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Beaver	6,000	7,000	158,500	226,700	257,850	2,540				1,280
Box Elder			108,300	125,900	276,620	499,550	966,340	98,276	30,326	3,892
Cache		8,100	4,400	8,400	8,260					
Carbon		33,100	33,100	2,530						
Daggett				4,600	21,450	7,610	8,160	7,956	1,280	2,341
Duchesne		83,900	7,000							
Emery		1,150	1,100	50						
Garfield				2,530	1,650					
Iron				7,600	70,790	3,040				
Juab	116,000	502,500	618,900	651,500	680,550	43,160		2,559		4,377
Millard	190,000	539,500	536,500	517,800	547,700	19,610				20,678
Rich						2,530				
Salt Lake						2,530		1,280		1,280
San Juan		18,300	14,400		3,920					
Sanpete				31,760	310	4,380				1,280
Sevier		24,500	85,500	190,200	177,420	1,570				
Summit					2,530					
Tooele	346,000	622,000	749,700	793,500	691,050	49,190	11,300	1,279	2,121	17,781
Uintah		48,800	48,900	31,300		5,070	68,740	16,579	2,560	1,280
Utah	500	5,650	74,600	116,200	123,800	3,780	1,280		1,280	
Washington					4,600					
Total	658,500	1,894,500	2,440,900	2,710,570	2,868,500	644,560	1,055,820	127,929	37,567	54,189



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Table 4. 2009 Mormon Cricket Acreage By County

County	Federal	State	Private	Total
Beaver	1,280			1,280
Box Elder	3,607		285	3,892
Daggett	943	120	1,278	2,341
Juab	2,516	145	1,716	4,377
Millard	8,992	976	10,710	20,678
Salt Lake		6	1,274	1,280
Sanpete			1,280	1,280
Tooele	11,858	1,867	4,056	17,781
Uintah			1,280	1,280
Total	29,196	3,114	21,879	54,189