

# Farm Bill Survey Accomplishment Report Template

## Farm Bill Survey Report

<b>Year:</b>	2017
<b>State:</b>	Colorado
<b>Cooperative Agreement Name:</b>	Grape Commodity Survey
<b>Cooperative Agreement Number:</b>	
<b>Project Funding Period:</b>	3/01/17-08/31/2018
<b>Project Report:</b>	<b>Farm Bill Survey Report</b>
<b>Project Document Date:</b>	8/23/2018
<b>Cooperators Project Coordinator:</b>	Jeanne Ring
<b>Name:</b>	Jeanne Ring
<b>Agency:</b>	Colorado Department of Agriculture
<b>Address:</b>	305 Interlocken Parkway
<b>City/ Address/ Zip:</b>	Broomfield, CO 80021
<b>Telephone:</b>	303-869-9076
<b>E-mail:</b>	Jeanne.ring@state.co.us

Quarterly Report	<input type="checkbox"/>
Semi-Annual Accomplishment Report	<input type="checkbox"/>
Annual Accomplishment Report	<input checked="" type="checkbox"/>

- A. Write a brief narrative of work accomplished. Compare actual accomplishments to objectives established as indicated in the work plan. When the output can be quantified, a computation of cost per unit is required when useful.

Cooperating vineyards were identified and sampled in counties with the highest grape production in Colorado. Outreach materials were created and distributed to growers and industry partners throughout the state.

Funding Amount	Total Number of Counties	Cost Per Unit
Proposed = \$20,234	Proposed = 15	Proposed= \$1,345
Actual = \$20,234	Actual = 6	Actual = \$3,372

1. Survey methodology (trapping protocol):

	Common Name	Scientific Name
<b>Pest:</b>	Grape phylloxera	<i>Daktulosphaira vitifoliae</i>
	Japanese wax scale	<i>Ceroplastes japonicus</i>
	Australian grapevine yellows	<i>Candidatus Phytoplasma australiense</i>
	Flavescence doree	<i>Candidatus Phytoplasma vitis</i>
	Rotbrenner	<i>Pseudopezicula tracheiphila</i>

	Proposed	Actual
<b>Sites (Locations):</b>	Unknown	68
<b>Samples analyzed:</b>	Unknown	214

<b>Number of Counties:</b>	4
<b>Counties:</b>	<i>Delta, Mesa, Montezuma, Montrose, Larimer, Fremont</i>

2. Survey dates:

	Proposed	Actual
<b>Survey Dates:</b>	3/1/2017 - 2/28/2018	3/1/2017 - 8/31/2018

3. Benefits and results of survey:

	Positive	Negative	Total Number
<b>Root samples</b>	12	202	214
<b>Visual surveys</b>	0	202	214

4. Database submissions:

This survey was extended until 8/31/2018.

B. If appropriate, explain why objectives were not met.

Difficult to identify growers outside the Grand Valley area where most of Colorado's grape production occurs.

C. Where appropriate, explain any cost overruns or unobligated funds in excess of \$1,000. \*

There are no unobligated funds associated with this project.

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*\*indicates information is required per 7 CFR 3016.40 and 7 CFR 3019.51*

Approved and signed by

  
\_\_\_\_\_  
Duane Sinning                      SPRO

Date: 8/30/18

\_\_\_\_\_  
Pat McPherran                      SPHD

Date: \_\_\_\_\_

# CAPS Survey Accomplishment Report Template

## CAPS Survey Report

<b>Year:</b>	2017
<b>State:</b>	Colorado
<b>Cooperative Agreement Name:</b>	Forest Pest
<b>FAIN Number:</b>	AP17PPQFO000C028
<b>Project Funding Period:</b>	March 1 <sup>st</sup> 2017-February 28, 2018
<b>Project Report:</b>	<b>CAPS Survey Report</b>
<b>Project Document Date:</b>	May 24, 2018
<b>Cooperators Project Coordinator:</b>	Jeanne Ring
<b>Name:</b>	Jeanne Ring
<b>Agency:</b>	Colorado Department of Agriculture
<b>Address:</b>	305 Interlocken Parkway
<b>City/ Address/ Zip:</b>	Broomfield, CO 80021
<b>Telephone:</b>	303-869-9076
<b>E-mail:</b>	jeanne.ring@state.co.us

Quarterly Report	<input type="checkbox"/>
Semi-Annual Accomplishment Report	<input type="checkbox"/>
Annual Accomplishment Report	<input checked="" type="checkbox"/>

A. Write a brief narrative of work accomplished. Compare actual accomplishments to objectives established as indicated in the work plan. When the output can be quantified, a computation of cost per unit is required when useful.

Funding Amount	Total Number of Traps	Cost Per Unit
Proposed = \$ 26,271	Proposed = 345	Proposed= \$76
Actual = \$26,271	Actual =345	Actual =\$76

1. Survey methodology (trapping protocol):

	Common Name	Scientific Name
<b>Pest:</b>	Mediterranean pine shoot beetle	Tomicus destruens
	Black fir saw fly	Monochamus urussovii
	Japanese pine sawyer	Monochamus alternatus
	Sakhalin pine sawyer	Monochamus saltuarius
	Siberian silk moth	Dendrolimus sibericus
	Pine tree lappet	Dendrolimus pini
	Rosy gypsy moth	Lymantria mathura
	Six toothed bark beetle	Ips sexdentatus
	Double spinned bark beetle	Ips duplicatus
	European spruce bark beetle	Ips typographus
	Mediterranean Pine engraver	Orthotomicus erosus
	Six toothed spruce bark beetle	Pityogenes chalcographus
	Lesser spruce shoot beetle	Hylurgops palliatus
	Red haired pine bark beetle	Hylurgus ligniperda
	Large pine weevil	Hylobius albietis
	Velvet long horned beetle	Trichoferus campestris
	Pine processionary moth	Thaumetopoea pityocampa

	Proposed	Actual
<b>Sites (Locations):</b>	25	25
<b>Traps:</b>	345	345

<b>Number of Counties:</b>	Adams, Arapahoe, Boulder, Delta, Denver, Douglas, Jefferson, Mesa, Montrose, Larimer and Weld
<b>Counties:</b>	11

2. Survey dates:

	<b>Proposed</b>	<b>Actual</b>
<b>Survey Dates:</b>	May-October	May-October

3. Benefits and results of survey:

	<b>Positive</b>	<b>Negative</b>	<b>Total Number</b>
<b>Traps</b>	0	345	345

4. Database submissions:

All data has been uploaded into NAPIS

B. **If appropriate, explain why objectives were not met.\***

All objectives were met

C. **Where appropriate, explain any cost overruns or unobligated funds in excess of \$1,000. \***

There were no unobligated funds associated with this project.

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*\*indicates information is required per 7 CFR 3016.40 and 7 CFR 3019.51*

Approved and signed by

  
Duane Sinning, SPRO

Date: 5/25/18

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Pat McPherren, ADODR

Date: \_\_\_\_\_

# CAPS Survey Accomplishment Report Template

Appendix P-2

## CAPS Survey Report

<b>Year:</b>	2017
<b>State:</b>	Colorado
<b>Cooperative Agreement Name:</b>	Stone Fruit Commodity Survey
<b>Cooperative Agreement Number:</b>	17-8508-1745-CA
<b>Project Funding Period:</b>	July 1, 2017 to June 30, 2018
<b>Project Report:</b>	<b>Farm Bill Survey Report</b>
<b>Project Document Date:</b>	June 30, 2018
<b>Cooperators Project Coordinator:</b>	Jeanne Ring
<b>Name:</b>	Lou Bjostad, Janet Hardin
<b>Agency:</b>	Colorado State University
<b>Address:</b>	Department of Bioagricultural Sciences and Pest Management
<b>City/ Address/ Zip:</b>	Fort Collins, Colorado 80523-1177
<b>Telephone:</b>	970-497-5987
<b>E-mail:</b>	Janet.Hardin@colostate.edu

Quarterly Report	<input type="checkbox"/>
Semi-Annual Accomplishment Report	<input type="checkbox"/>
Annual Accomplishment Report	<input checked="" type="checkbox"/>

- A. **Write a brief narrative of work accomplished. Compare actual accomplishments to objectives established as indicated in the work plan. When the output can be quantified, a computation of cost per unit is required when useful.**

As proposed, all survey work was conducted on the West Slope of Colorado at 31 sites in Mesa County, 18 in Delta County and 2 in Montrose County, the prime growing areas for stone fruits in the state. Surveys were conducted by personnel at the TriRiver Extension Office of Colorado State Extension. Sites selected for the survey were associated with known and suspected pathways of introduction for the targeted pest species. In May and June 2017 trees in peach, plum, apricot, nectarine and cherry orchards were inspected visually for symptoms perhaps indicative of PPV. 51 samples were submitted to the Plant Diagnostic Clinic for testing. None proved positive for PPV.

Five traps were set up at each orchard site April – June 2017 and serviced according to protocol described in the national Stone Fruit Commodity Survey. Delta traps were set for Summer Fruit Tortrix (*Adoxophyes orana*) and wing traps for False Codling Moth (*Thaumatotibia leucotreta*) and Plum Fruit Moth (*Grapholita funebrana*). Sticky traps were established for detection of apple maggot and European cherry fruit fly. Traps were inspected monthly and serviced at appropriate intervals according to recommendations for each specific lure. None of the target moth species nor apple maggots were found in (or on) the traps.

Visual surveys for any and all insect pest species, including Japanese Wax Scale, the Fruit-piercing Moth and Plum Curculio, were also conducted during trap check visits at each site. Visual surveys were also conducted for almond witches' broom. None of the target species (or evidence of them) were found at any of the orchard sites.

Funding Amount	Total Number of Traps	Cost Per Unit
Proposed = \$ 34,548	Proposed = 245-255	Proposed=
Actual = \$ 34,548	Actual = 255	Actual =

**1. Survey methodology (trapping protocol):**

	Common Name	Scientific Name
<b>Pest:</b>	False Codling Moth	<i>Thaumatotibia leucotreta</i>
<b>Pest:</b>	Summer Fruit Tortrix	<i>Adoxophyes orana</i>
<b>Pest:</b>	Plum Fruit Moth	<i>Grapholita (Cydia) funebrana</i>
<b>Pest:</b>	Apple Maggot	<i>Rhagoletis pomonella</i>
<b>Pest:</b>	European cherry fruit fly	<i>Rhagoletis cerasi</i>



	<b>Visual Surveys:</b>	
<b>Pest:</b>	Plum Pox Virus	Potyvirus plum pox virus
<b>Pest:</b>	Japanese Wax Scale	<i>Ceroplastes japonica</i>
<b>Pest:</b>	Fruit-piercing Moth	<i>Eudocima funebrana</i>
<b>Pest:</b>	Plum curculio	<i>Conotrachelus nenuphar</i>

	<b>Proposed</b>	<b>Actual</b>
<b>Sites (Locations):</b>	49-51	51
<b>Traps:</b>	245-255	255

<b>Number of Counties:</b>	3
<b>Counties:</b>	Delta, Mesa, Montrose

2. Survey dates:

	<b>Proposed</b>	<b>Actual</b>
<b>Survey Dates:</b>	May – September 2017	April – September 2017

3. Benefits and results of survey:

	<b>Positive</b>	<b>Negative</b>	<b>Total Number</b>
<b>Traps</b>	0	255	255

4. Database submissions:

All data and maps of trap locations have been submitted.

**B. If appropriate, explain why objectives were not met.\***

All objectives were met.


**C. Where appropriate, explain any cost overruns or unobligated funds in excess of \$1,000. \***

There were no cost overruns. Unobligated funds (in excess of \$7,000) are due to fewer samples being collected for Plum Pox Virus analysis, which resulted in reduced effort to achieve project objectives.

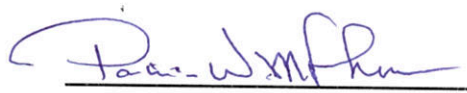
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*\*indicates information is required per 7 CFR 3016.40 and 7 CFR 3019.51*

Approved and signed by

  
\_\_\_\_\_  
Duane Sinning, SPRO

Date: 7/3/18

  
\_\_\_\_\_  
Pat McPherran, SPHD

Date: 07/03/18

**Biocontrol Report**

<b>Year:</b>	2017
<b>State:</b>	Colorado
<b>Cooperative Agreement Name:</b>	Biological Control of Russian knapweed and yellow toadflax
<b>Cooperative Agreement Number:</b>	17-8508-0013-CA
<b>Project Funding Period:</b>	March 1, 2017 to February 28, 2018
<b>Project Report:</b>	<b>Annual Report Biological Control of Russian knapweed and yellow toadflax</b>
<b>Project Document Date:</b>	<b>May 24, 2017</b>
<b>Cooperators Project Coordinator:</b>	Dan Bean and John Kaltenbach
<b>Name:</b>	Jeanne Ring
<b>Agency:</b>	Colorado Department of Agriculture
<b>Address:</b>	305 Interlocken Parkway
<b>City/ Address/ Zip:</b>	Broomfield, CO 80215
<b>Telephone:</b>	303-869-9076
<b>E-mail:</b>	Jeanne.Ring@state.co.us

Quarterly Report	<input type="checkbox"/>
Semi-Annual Accomplishment Report	<input type="checkbox"/>
Annual Accomplishment Report	<input checked="" type="checkbox"/>

**A. Write a brief narrative of work accomplished. Compare actual accomplishments to objectives established as indicated in the work plan. When the output can be quantified, a computation of cost per unit is required when useful.**

Below are the four objectives listed in the work plan. All four objective were met during the 2017 season.

1. To collect, rear, and release the toadflax stem borer *Mecinus janthinus* for control of yellow toadflax (*Linaria vulgaris*), the Russian knapweed gall midge, *Jaapiella ivannikovi* and the Russian knapweed gall wasp, *Aulacidea acroptilonica* for control of Russian knapweed (*Rhaponticum repens*).
2. To monitor establishment and impact of *M. janthinus* on yellow toadflax and *J. ivannikovi* and *A. acroptilonica* on Russian knapweed at sites throughout Colorado.
3. To monitor changes in vegetation, other than the target weeds, at *M. janthinus*, *J. ivannikovi* and *A. acroptilonica* release sites and to continue monitoring vegetation changes associated with the impact of *Mecinus janthiniformis* on Dalmatian toadflax at the High Park/Hewlett burn of 2012.
4. To provide weed biocontrol agents to cooperators outside of Colorado, at the request of the USDA APHIS. These agents will include *J. ivannikovi*, which we now have in numbers sufficient for redistribution, and *M. janthinus* and *A. acroptilonica* (if collection numbers permit us to do so) as well as other agents established in Colorado but not commonly found in collectable numbers in other states. These include *Aceria malherbae* for field bindweed mite and *Hylobius transversovittatus* the purple loosestrife stem root borer which we rear on artificial diet, and *Cyphocleonus achates*, the knapweed root weevil, as well as others that we have available in Colorado.

**Accomplishments:**

**1. Collection and release of *J. ivannikovi* and *M. janthinus*.**

We continued to rear Russian knapweed gall midges, *J. ivannikovi*, in our greenhouses on live Russian knapweed plants. Even though we have at least two good field collection sites we will continue to rear *J. ivannikovi* in our greenhouses since they need to be released early in the season, when Russian knapweed plants are just beginning to show spring growth and field collection of galls would be 2-3 weeks away. We also collected galls from the Insectary garden. In the greenhouses knapweed was planted at regular intervals so that we had a continuous supply of fresh plants which we exposed to gall midges at regular intervals. From March to mid-April we steadily increased gall numbers (infested plants) so that we had 200 gall-bearing plants when field season began. Most of our releases are now made using bouquets of galled Russian knapweed stems since work done at the Insectary indicated that bouquets yield the same establishment rate as potted plants (see Fig 1) so our protocol now relies strictly on cut bouquets for releases..

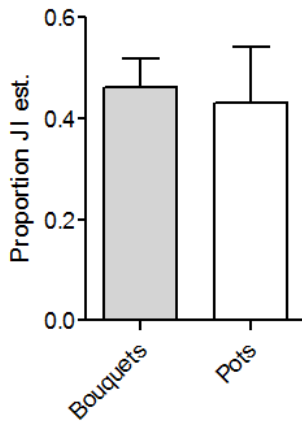


Figure 1. Proportion of releases in which year to year establishment occurred, a comparison of the use of potted galled plants vs. cut stem bouquets.

We put out bouquets of galled shoots in most cases. This season we released **3,930 galls** at 62 sites in counties across Colorado. Most of our releases have been made using bouquets consisting of about 25 galls per bouquet. We have developed a *Jaapiella* insectary on BLM land along the Colorado River near the town of Loma (the Horse thief site). **For the second year in a row this site had over 10,000 *Jaapiella* galls in the late spring, and provided us with a collection site**, as well as acting as a site from which flies can disperse into western Colorado and eastern Utah.

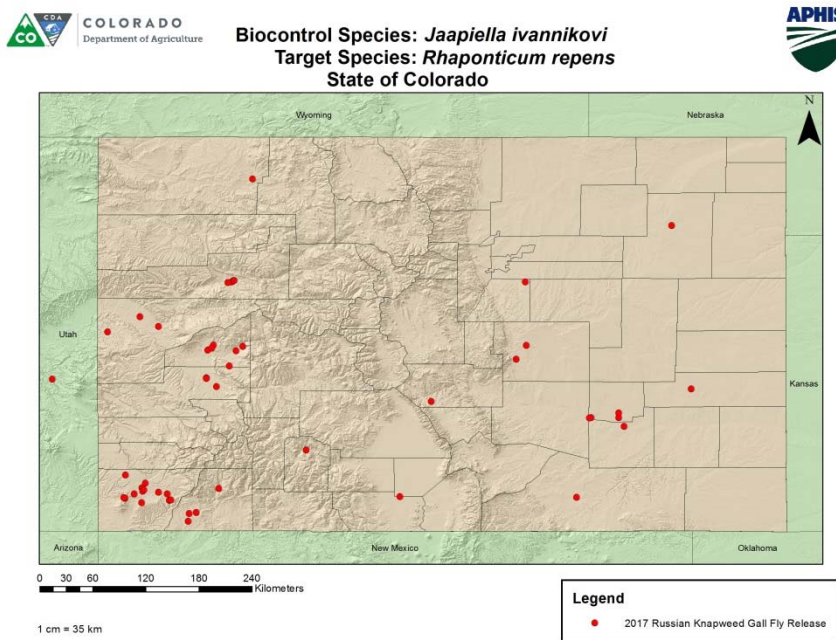


Figure 2. Release sites for Russian knapweed gall midges, 2017

We received 1,750 Russian knapweed gall wasps, *Aulacidea acroptilonica*, through Jeff Littlefield, Montana State University, Bozeman. We released all of them, plus some collected from the Insectary garden, at 11 sites in western Colorado, which is the largest number of releases that we've been able to make in Colorado. One of the release sites is the BLM site near the town of Loma where we have a substantial population of the gall midge. This site could potentially provide us with information on the interaction between the gall wasp and gall midge. This season we again found galls in the Insectary garden and at the Escalante Wildlife Area in Delta County, CO **which is the second year for establishment at both sites.** We will continue to track gall formation at these sites. We collected 26 galls from the Insectary garden and used them to establish a greenhouse culture of galls. It is generally difficult to rear *A. acroptilonica* under greenhouse conditions. This is the first field collection and redistribution of the gall wasp in Colorado.

We have surveyed our 13 monitoring sites where Russian knapweed gall midges were released and have counted Russian knapweed stems at 13 sites. We have also assisted Dr. Paul Ode of CSU Ft. Collins in monitoring an additional 12 Russian knapweed sites across Colorado as part of a study to determine the impact of interactions between the gall wasp and the gall midge.

We recovered yellow toadflax weevils (*Mecinus janthinus*) from toadflax stems reared in the greenhouses over the winter and combined them with weevils from stems collected in Minturn and Oakridge State Wildlife Area for a total of 3,061 weevils from in-state sources. In addition we received 5,000 *M. janthinus* adults from USDA APHIS cooperators in Montana for a total of 8,061 weevils for release. These were all released by Insectary Staff or divided between cooperators in Douglas, Rio Blanco, Garfield, San Miguel and La Plata Counties.

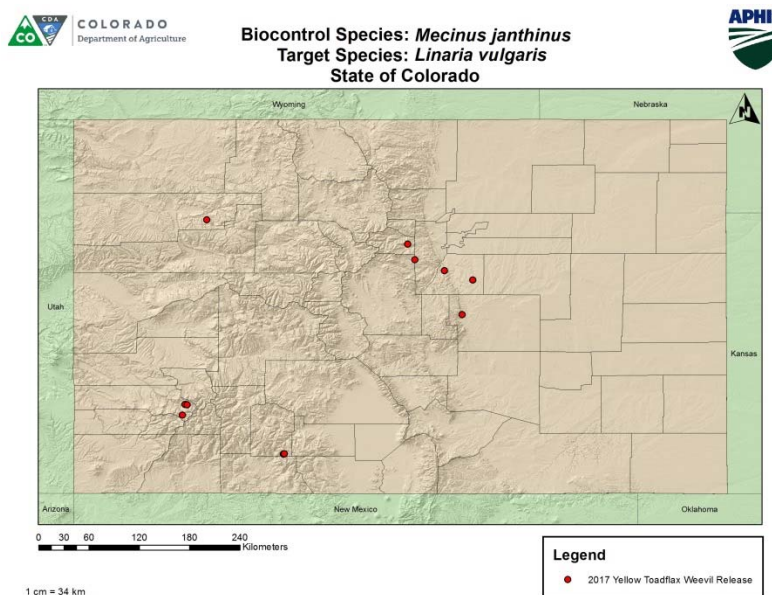


Figure 3. 2017 release sites for *M. janthinus*.

Early season surveys of our existing release sites showed overwinter establishment at six out of 13 sites (see Figure 4 for site locations) plus three sites that are not part of the monitoring program. One of those six sites had high enough populations to enable collection and redistribution (Minturn) although all six sites show promise for future redistribution collections. It is interesting to note that we have had more success at sites on the eastern slope of the Rockies with the Windhorse, Staunton State Park and Flying W Ranch sites all being recently established and thriving while our older sites on the western slope of Colorado showed establishment 5 years ago (or longer) but have failed to expand rapidly enough to provide us with high quality collection sites. The exception is one of the oldest sites, Minturn, where last season saw a dramatic expansion of the population to toadflax patches up to 2 miles away from the original release site. We will continue to search for additional sites on the Front Range since *M. janthinus* appear to thrive there.

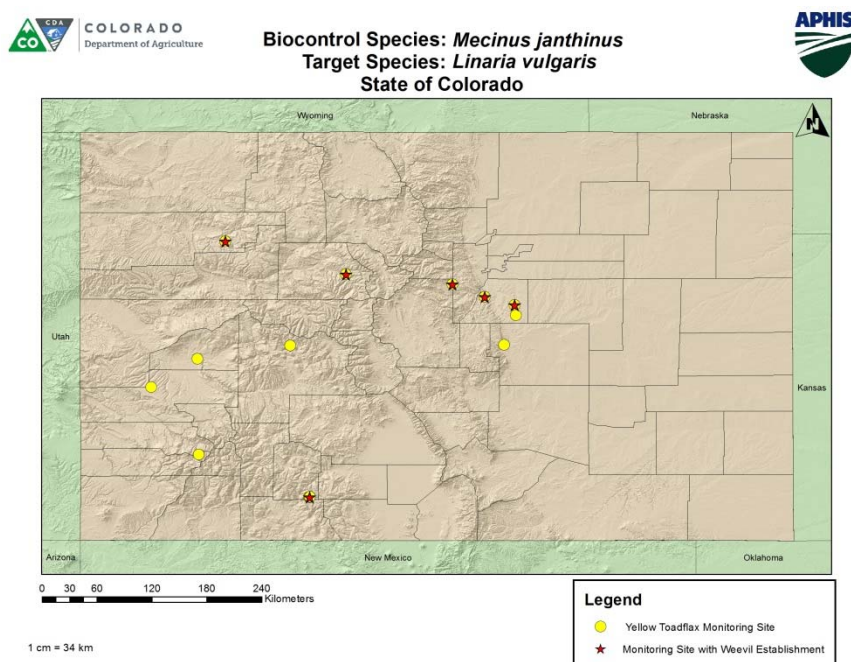


Figure 4. Monitoring sites for *M. janthinus* on yellow toadflax. Sites shown with red stars are ones where beetles have been established for at least two seasons (the Minturn and Upper Burro Mountain sites have been established for 6 seasons). We have seen establishment at three additional sites that aren't included in our monitoring sites..

**2. Monitoring establishment and impact of *M. janthinus* and *J. ivannikovi*.** *M. janthinus* have been released at 13 monitoring sites and we have now recovered weevils at six of them during early season monitoring (Figure 4). The six recovery sites include three sites on the Front Range and three sites in western Colorado that have shown establishment since 2011. We have only been able to collect at a single location although collections from other sites could be made in the near future. *J. ivannikovi* were recovered at multiple sites and in areas far removed for the original release locations. We have supplied *J. ivannikovi* to cooperators in Utah and have offered to provide the gall midges to cooperators across the

western US. We didn't receive additional requests for them in 2017 but did receive requests for 2018.

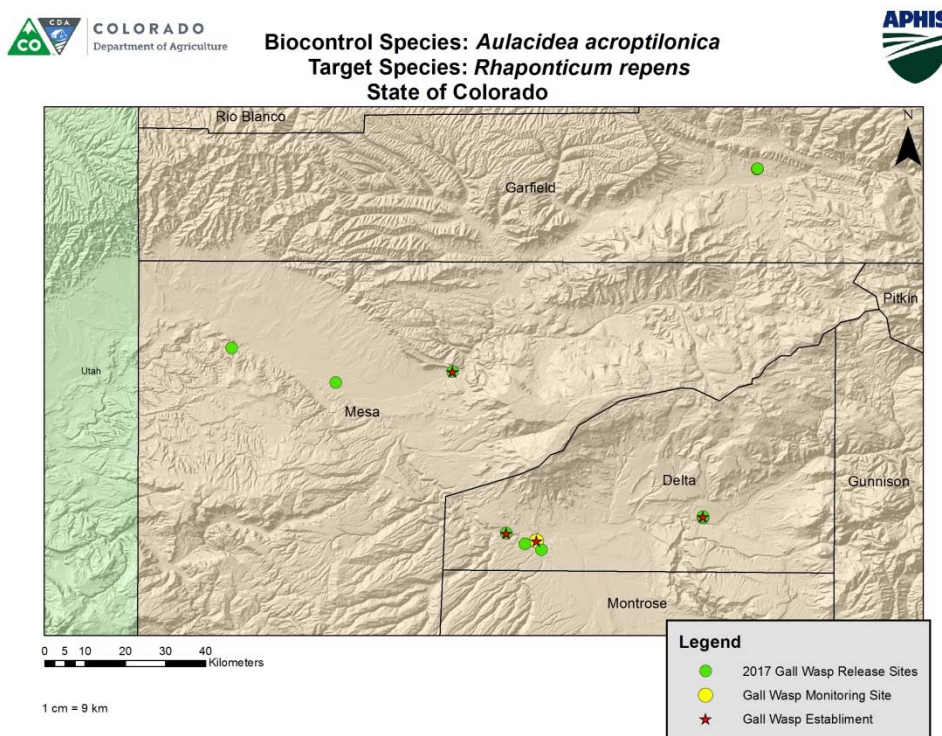


Figure 5. Release and establishment of the gall wasp *A. acroptilonica* in western Colorado.

**3. Monitoring changes in vegetation composition at biocontrol sites.** We continue to monitor 13 sites (yellow toadflax) and 13 sites (Russian knapweed) for changes in vegetation patterns following biocontrol implementation. We have yet to note shifts in vegetation patterns although at the Oakridge State Wildlife Area (where we don't have formal monitoring) we have seen areas previously dense with yellow toadflax now dominated by grasses.

**4. Providing biocontrol agents for establishment in other states.** We collected and shipped 6 releases of the bindweed mite, *Aceria malherbae*, to USDA APHIS cooperator Bruce Shambaugh in Wyoming and we are working to coordinate another major shipment during the second week of August. We are also working to coordinate a shipment to Shayne Galford, SPHD for Nebraska and Kansas.

Agent	Target	Stage	Location	# Releases	Total Agents
<i>Aceria malherbae</i>	Field Bindweed	Gall	Wyoming	49	49,000
<i>Aceria malherbae</i>	Field Bindweed	Gall	Utah	7	7,000
<i>Aceria malherbae</i>	Field Bindweed	Gall	Nebraska	6	6,000



The Palisade Insectary rears the purple loosestrife root boring weevils, *Hylobius transversovittatus* on artificial diet and ships adults to end users in other states. We have shipped out adult weevils to cooperators in three states. We shipped a total of 1,800 adult weevils.

Agent	Target	Stage	Location	Total Agents
<i>Hylobius transversovittatus</i>	Purple loosestrife	Adult	Oregon	450
<i>Hylobius transversovittatus</i>	Purple loosestrife	Adult	Utah	800
<i>Hylobius transversovittatus</i>	Purple loosestrife	Adult	Washington	550

### **Successful establishment of *H. transversovittatus* in Utah**

Amber Mendenhall sent out a letter this year reporting the successful establishment of *Hylobius transversovittatus* on purple loosestrife patches in Utah. Utah has worked with the Colorado Department of Agriculture to receive and release *Hylobius* in an ongoing effort to suppress PLS using biological control. In 2017 the Utah State Department of Agriculture and cooperators were able to release 200 “wild caught” *Hylobius* collected from a field nursery site that they had established using beetles reared in Palisade. This is the first location in the western US, to our knowledge, where there are established and collectible populations of *Hylobius*. We continue to work with Amber and other cooperators in Utah to establish additional collection sites for *Hylobius*. We feel that the “one-two punch” of *Galerucella* and *Hylobius* should provide long term suppression of PLS in the western US.

**Canyonlands National Park** in Eastern Utah received gall midges (*J. ivannikovi*) from the Insectary this spring and these were released at sites along the Green River. Follow up monitoring was done in August and no galls were found at that time. Arrangements were made to receive more galls in 2018 at an earlier date (late April) which should enable gall midges to colonize new spring growth.

### **Biological Control in Wildfire Recovery: the Successful Suppression of Dalmatian Toadflax**

In 2013 the Palisade Insectary joined with a consortium of agencies (including the USDA APHIS) and local weed control groups to form the Poudre Invasive Species Partnership. The Partnership was formed to devise and implement strategies for weed control throughout the vast High Park and Hewlett Gulch fire burns west of Ft. Collins, CO. The project presents challenges in coordination for agencies and landowners as well as in delivering weed control to a vast (about 90,000 acres) area that is severely disturbed by fire. Our role was to provide *Mecinus janthiniformis* to control tens of thousands of acres of Dalmatian toadflax which became dominant following the fire. We were also tasked with providing data on the efficacy of biocontrol in this setting. Given the increased numbers of wildfires and the impact of fire on invasive plants we view this project as a model for rapid deployment of biocontrol agents following fires or other major disturbances. We released agents at 20 sites throughout an area of approximately 900 acres (5,000 total weevils released) and set up 4 sites for long term monitoring, both of toadflax density and vegetation cover. Figure 3

is a map of the area with our release and monitoring sites marked. In the spring and early summer of 2016 we visited all of the weevil release sites and noted a dramatic decline in toadflax densities which were captured in a series of before and after photos (we have include a single pair of photos in this report, all other photos will be presented in the final report). We also surveyed toadflax adjacent to the monitoring sites and found *Mecinus* present on all remaining toadflax stems surveyed.



Before (left, 2013) and after (right, 2016) photos taken at a *M. janthiniformis* release sites as part of the Poudre Invasive Species Partnership. Note absence of Dalmatian toadflax. During the survey and monitoring done this year, 2017, it was noted that Dalmatian toadflax continues to be suppressed and nearly absent from monitoring sites, including the ones pictured above.

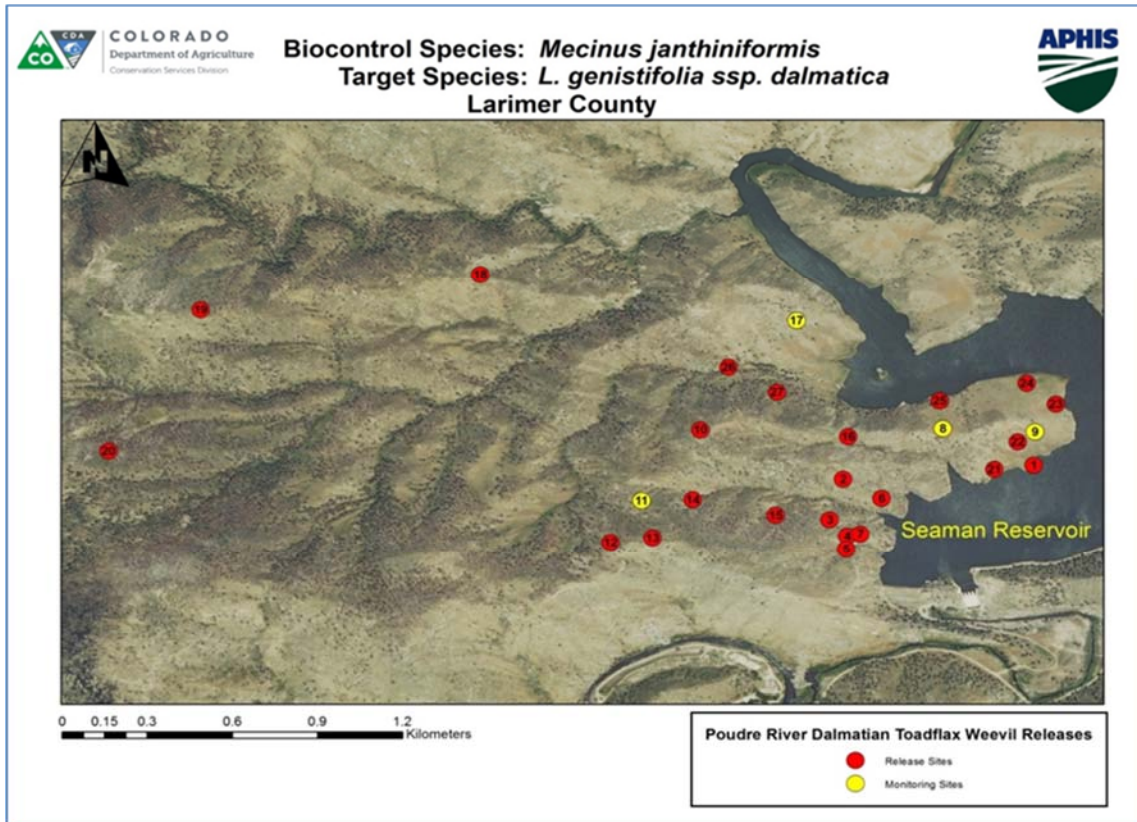


Figure 6. Release sites for *M. janthiniformis* in areas burned by the High Park and Hewlett Gulch fires of 2012. The North Fork of the Cache la Poudre River is seen in the lower right corner.

Site # shown on map	Total Dalmatian toadflax stems			Percent remaining toadflax stems in 2017
	2013	2016	2017	
8	785	4	0	0%
9	468	23	3	0.64%
11	463	0	0	0%
17	525	69	108	20.5%

Our monitoring program consists of target weed stem counts at a 16 m<sup>2</sup> area around the release point as well as beetle and vegetation densities measured using 6x50m transects radiating out from the release point. Last spring (2016) we noted very little Dalmatian toadflax at any of our four monitoring sites, and in early summer we counted stems and noted that total stem counts were reduced to less than 5% of their starting number. This

spring (2017) we saw the same pattern with very little Dalmatian toadflax in the burned area. Monitoring in July 2017 revealed a continued pattern over very low toadflax densities with stem counts at about 5% of what they were the first year after the fire.

<b>Table 1: 2017 Weed biological control releases</b>			
<b>Agent</b>	<b>Target</b>	<b># of Releases</b>	<b>Total Agents</b>
<i>Aceria malherbae</i>	Field bindweed	586	586,000
<i>Tyta luctuosa</i>	Field bindweed	25	3,650
<i>Aphthona</i> spp.	Leafy spurge	122	122,000
<i>Oberea erythrocephala</i>	Leafy spurge	3	165
<i>Larinus minutus</i>	Diffuse or Spotted Knapweed	87	17,400
<i>Cyphocleonus achates</i>	Spotted Knapweed	2	200
<i>Jaapiella ivannikovi</i>	Russian Knapweed	62	3,930
<i>Aulacidea acroptilonica</i>	Russian Knapweed	11	1,806
<i>Mecinus janthinus</i>	Yellow toadflax	29	8,061
<i>Mecinus janthiniformis</i>	Dalmatian toadflax	93	18,600
<i>Trichosiocalus horridus</i>	Musk thistle	178	17,790
<i>Puccinia punctiformis</i>	Canada thistle	128	3,191 grams
<i>Macrocentrus ancyliivorus</i>	Oriental fruit moth	2,655	2,655,000
<i>Hylobius transversovittatus</i>	Purple loosestrife	7	1,800
<i>Microlarinus</i> spp	Puncturevine	94	9,400
“# of Releases” may represent more than one release site. The number in the column “Total Agents” is the number of adults, galls, mites or inoculations depending on the agent.			

**Benefits and results of work:** Russian knapweed is one of Colorado’s top five worst weeds in terms of area covered and economic impact. We have established the gall midge at numerous locations and have made the midge available to end users in Colorado. We now have several sites where gall numbers are high enough to be collectable, including one highly successful nursery site on BLM land, and we have offered to redistribute midges to other states. We have two established populations of the gall wasp *Aulacidea acroptilonica* and are planning to release the wasp at sites where we already have established midges. We continue to develop field nursery sites that will enable us to make large scale releases in Colorado and offer Russian knapweed agents to users in other states. Our next major goal is to have one or more sites where both the gall wasp and gall midge are well established.

We have released the yellow toadflax stem boring weevil, *M. janthinus* at approximately 20 sites, mostly in remote and mountainous areas where other control methods are difficult. In many of our release areas biological control is the only practical way to reduce stand densities of this weed. Unfortunately our established populations remain small but the number of established sites is growing and we are slowly reaching a point where we may have sufficient numbers of weevils for redistribution. As it stands now we have been able to collect enough weevils from one of our oldest sites (Minturn, CO) to supply about 25 % of our in-state requests. We have also noted that *M. janthinus* are slow to build up substantial populations but they do eventually get there. We were also very happy to note the first establishment of weevils in the San Juan Mountains of southern Colorado. This area has seen a steady increase in yellow toadflax over the past 20 years and is somewhat “off the radar” yet seemingly very susceptible to continued large scale toadflax invasions. *M. janthinus* have been slow to establish there but now that we have recovered beetles from the field we expect to have increasing populations in the region. Continued monitoring is essential in order to decide if the agent will be effective and how long it will take to see a population level impact on yellow toadflax.

We continue to provide other agents as needed by states outside of Colorado. This includes efforts to establish the field bindweed mite, *Aceria malherbae*, in other states. We have shipped mites to Bruce Shambaugh (USDA APHIS Wyoming) and will work with him to collect more mites in the coming weeks. We are currently in contact with Shayne Galford, SPHD for Nebraska and Kansas, in order to make a large scale shipment to sites in Nebraska. Given our success with the mites there is great promise, especially in the west, for achieving bindweed control with them. We continue to rear and distribute the purple loosestrife root boring weevil *Hylobius transversovittatus* for purple loosestrife (PLS) control. We receive a steady stream of requests for this insect coming from states where PLS is a devastating weed. The weevil is quite difficult to collect in the field so we continue to supply end users with it. This year we received a very encouraging report from Amber Mendenhall, weed biocontrol specialist in Utah, that she and cooperators have been able to collect weevils in the field and use them for redistribution. This is the first time we’ve had cooperators establish a collectable population of *H. transversovittatus* in the field. We also continue to supply end users in Utah with the gall midge. This season we have shipped galls to Canyonlands National Park for release at remote locations on the Green River.

The Poudre Project yielded a major biocontrol success when Dalmatian toadflax populations crashed in 2016 over a large, difficult to access area that had been devastated by wildfire. This season we continued to measure low densities of toadflax, showing that the results are likely to be long lasting and sustainable. The project offers a template for rapid deployment of biological control to contain a weed that had exploded in density due to fire disturbance. This could save hundreds of thousands of dollars in control costs in post burn remediation efforts.

**B. If appropriate, explain why objectives were not met.\*** We met our objectives for 2017.

**C. Where appropriate, explain any cost overruns or unobligated funds in excess of \$1,000. \***  
We had no cost overruns or unobligated funds.

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*\*indicates information is required per 7 CFR 3016.40 and 7 CFR 3019.51*

**Approved and signed by**

\_\_\_\_\_  
**Duane Sinning, SPRO**

**Date:** \_\_\_\_\_

\_\_\_\_\_  
**Pat McPherran, ADODR**

**Date:** \_\_\_\_\_

# CAPS Survey Accomplishment Report Template

## CAPS Survey Report

<b>Year:</b>	2017
<b>State:</b>	Colorado
<b>Cooperative Agreement Name:</b>	Commodity Bundled Survey
<b>FAIN Number:</b>	AP17PPQFO000C028
<b>Project Funding Period:</b>	March 1 <sup>st</sup> 2017-February 28, 2018
<b>Project Report:</b>	<b>CAPS Survey Report</b>
<b>Project Document Date:</b>	May 28, 2018
<b>Cooperators Project Coordinator:</b>	Jeanne Ring
<b>Name:</b>	Jeanne Ring
<b>Agency:</b>	Colorado Department of Agriculture
<b>Address:</b>	305 Interlocken Parkway
<b>City/ Address/ Zip:</b>	Broomfield, CO 80021
<b>Telephone:</b>	303-869-9076
<b>E-mail:</b>	jeanne.ring@state.co.us

Quarterly Report	<input type="checkbox"/>
Semi-Annual Accomplishment Report	<input type="checkbox"/>
Annual Accomplishment Report	<input checked="" type="checkbox"/>

A. Write a brief narrative of work accomplished. Compare actual accomplishments to objectives established as indicated in the work plan. When the output can be quantified, a computation of cost per unit is required when useful.

Funding Amount	Total Number of Traps	Cost Per Unit
Proposed = \$24,433	Proposed = 80	Proposed= \$305
Actual =\$24,433	Actual =78	Actual =\$313

1. Survey methodology (trapping protocol):

	Common Name	Scientific Name
<b>Pest:</b>	Old world boll worm	Helicoverpa armigera
	Tomato fruit borer	Neoleucinodes elegantalis
	Southern bacterial wilt	Ralstonia solanacearum
	Cotton cutworm	Spodoptera litura
	False codling moth	Thaumatotibia leucotreta
	Cucumber green mottle moasic	Tobamovirus
	Groundnut bud necrosis	Tospovirus
	Tomato leaf miner	Tuta absoluta
	Tomato black ring virus	Nepovirus
	Allium leaf miner	Phytomyza gymnostoma
	Chilli thrips	Scirtothrips dorsalis

	Proposed	Actual
<b>Sites (Locations):</b>	40	38
<b>Traps:</b>	80	78

<b>Number of Counties:</b>	2
<b>Counties:</b>	Pueblo and Otero

2. Survey dates:

	Proposed	Actual
<b>Survey Dates:</b>	May-Oct	May-Oct

3. Benefits and results of survey:

	Positive	Negative	Total Number
<b>Traps</b>	0	78	78



**4. Database submissions:**

All data has been submitted to an APHIS approved data base

**B. If appropriate, explain why objectives were not met.\***

All obligations have been met

**C. Where appropriate, explain any cost overruns or unobligated funds in excess of \$1,000. \***

Not applicable

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*\*indicates information is required per 7 CFR 3016.40 and 7 CFR 3019.51*

Approved and signed by

  
Duane Sinning, SPRO

Date: 6/22/14

\_\_\_\_\_  
Pat McPherran, ADODR

Date: \_\_\_\_\_

# CAPS Survey Accomplishment Report Template

## CAPS Survey Report

<b>Year:</b>	2017
<b>State:</b>	Colorado
<b>Cooperative Agreement Name:</b>	Karnal Bunt
<b>FAIN Number:</b>	AP17PPQFO000C028
<b>Project Funding Period:</b>	March 1 <sup>st</sup> 2017-February 28, 2018
<b>Project Report:</b>	<b>CAPS Survey Report</b>
<b>Project Document Date:</b>	May 28, 2018
<b>Cooperators Project Coordinator:</b>	Jeanne Ring
<b>Name:</b>	Jeanne Ring
<b>Agency:</b>	Colorado Department of Agriculture
<b>Address:</b>	305 Interlocken Parkway
<b>City/ Address/ Zip:</b>	Broomfield, CO 80021
<b>Telephone:</b>	303-869-9076
<b>E-mail:</b>	jeanne.ring@state.co.us

Quarterly Report	<input type="checkbox"/>
Semi-Annual Accomplishment Report	<input type="checkbox"/>
Annual Accomplishment Report	<input checked="" type="checkbox"/>

- A. Write a brief narrative of work accomplished. Compare actual accomplishments to objectives established as indicated in the work plan. When the output can be quantified, a computation of cost per unit is required when useful.

Funding Amount	Total Number of Samples	Cost Per Unit
Proposed = \$1,407	Proposed = 37	Proposed= \$38.00
Actual =\$1,407	Actual =37	Actual =\$38.00

1. Survey methodology (trapping protocol):

	Common Name	Scientific Name
Pest:	Karnal Bunt	Tilletia indica

	Proposed	Actual
Sites (Locations):	37	37

Number of Counties:	10
Counties:	Kiowa, Kit Carson, Cheyenne, Lincoln, Yuma, Washington, Weld, Morgan, Adams, Arapahoe.

2. Survey dates:

	Proposed	Actual
Survey Dates:	Early-mid July	Early-mid July

3. Benefits and results of survey:

	Positive	Negative	Total Number
Samples	0	37	37

4. Database submissions:

All data has been submitted to APHIS approved databases

- B. If appropriate, explain why objectives were not met.\*

All objectives were met.

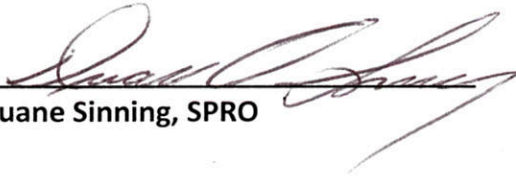
- C. Where appropriate, explain any cost overruns or unobligated funds in excess of \$1,000. \*

Not applicable

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*\*indicates information is required per 7 CFR 3016.40 and 7 CFR 3019.51*

Approved and signed by

  
\_\_\_\_\_

Duane Sinning, SPRO

Date: 6/22/18

\_\_\_\_\_

Pat McPherran, ADODR

Date: \_\_\_\_\_

# CAPS Survey Accomplishment Report Template

## CAPS Survey Report

<b>Year:</b>	2017
<b>State:</b>	Colorado
<b>Cooperative Agreement Name:</b>	Small Grains and Corn Bundled Survey
<b>FAIN Number:</b>	AP17PPQFO000C028
<b>Project Funding Period:</b>	March 1 <sup>st</sup> 2017-February 28, 2018
<b>Project Report:</b>	<b>CAPS Survey Report</b>
<b>Project Document Date:</b>	May 28, 2018
<b>Cooperators Project Coordinator:</b>	Jeanne Ring
<b>Name:</b>	Jeanne Ring
<b>Agency:</b>	Colorado Department of Agriculture
<b>Address:</b>	305 Interlocken Parkway
<b>City/ Address/ Zip:</b>	Broomfield, CO 80021
<b>Telephone:</b>	303-869-9076
<b>E-mail:</b>	jeanne.ring@state.co.us

Quarterly Report	<input type="checkbox"/>
Semi-Annual Accomplishment Report	<input type="checkbox"/>
Annual Accomplishment Report	<input checked="" type="checkbox"/>

- A. Write a brief narrative of work accomplished. Compare actual accomplishments to objectives established as indicated in the work plan. When the output can be quantified, a computation of cost per unit is required when useful.

Funding Amount	Total Number of Traps	Cost Per Unit
Proposed =	Proposed = \$17,681	Proposed= \$280
Actual =	Actual = \$17,681	Actual = \$280

1. Survey methodology (trapping protocol):

	Common Name	Scientific Name
<b>Pest:</b>	Old world boll worm	Helicoverpa armigera
	Cotton cutworm	Spodoptera litura
	False codling moth	Thaumatotibia leucotreta
	Cotton seed bug	Oxycarenus hyalipennis
	Cucurbit beetle	Diabrotica speciosa
	Sunn pest	Eurygaster integriceps
	Small brown planthopper	Laodelphax striatellus
	New Zealand wheat bug	Nysius huttoni

	Proposed	Actual
<b>Sites (Locations):</b>	25	25
<b>Traps:</b>	63	63

<b>Number of Counties:</b>	6
<b>Counties:</b>	Logan, Yuma, Kit Carson, Cheyenne, Powers

2. Survey dates:

	Proposed	Actual
<b>Survey Dates:</b>	May-Oct	May-Oct

3. Benefits and results of survey:

	Positive	Negative	Total Number
<b>Traps</b>	0	63	63

4. Database submissions:

All data has been submitted to an APHIS approved database

B. If appropriate, explain why objectives were not met.\*

All obligations were met.

C. Where appropriate, explain any cost overruns or unobligated funds in excess of \$1,000. \*

Not applicable

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*\*indicates information is required per 7 CFR 3016.40 and 7 CFR 3019.51*

Approved and signed by

  
\_\_\_\_\_  
Duane Sinning, SPRO

Date: 6/27/12

\_\_\_\_\_  
Pat McPherran, ADODR

Date: \_\_\_\_\_

## CAPS Infrastructure Accomplishment Report Template

<b>Year:</b>	2017
<b>State:</b>	Colorado
<b>Cooperative Agreement Name:</b>	Infrastructure
<b>Cooperative Agreement Number:</b>	
<b>Project Funding Period:</b>	March 1, 2018-February 28, 2018
<b>Project Report:</b>	<b>CAPS Infrastructure Report</b>
<b>Project Document Date:</b>	June 25, 2018
<b>Cooperators Project Coordinator:</b>	Jeanne Ring
<b>Name:</b>	Jeanne Ring
<b>Agency:</b>	Colorado Department of Agriculture
<b>Address:</b>	305 Interlocken Parkway
<b>City/ Address/ Zip:</b>	Broomfield, CO 80138
<b>Telephone:</b>	303-501-6651
<b>E-mail:</b>	Jeanne.ring@state.co.us

Quarterly Report	<input type="checkbox"/>
Semi-Annual Accomplishment Report	<input type="checkbox"/>
Annual Accomplishment Report	<input checked="" type="checkbox"/>



A. Compare actual accomplishments to objectives established as indicated in the work plan. When the output can be quantified, a computation of cost per unit is required when useful

- Activities:
  - Committee Service:
    - Emerging Pests of Colorado
    - Colorado Emerald Ash Borer Response Team
  - Other Survey Work:
    - Forest Pest, Commodity Bundled, Small Grains, Karnal Bunt, National Honeybee, and Grape Commodity survey's were completed. Provided administrative support for the Colorado Department of Agriculture's biological control project funded through Farm Bill. Coordinated with Colorado State University cooperators for a Stone Fruit survey also funded by the 2017 Farm Bill.
    - Provided administrative and field support for all survey technicians
    - Coordinated vehicle use and maintenance with state fleet
    - Distributed traps and lure to cooperators
    - Supported the USDA Gypsy Moth Survey, setting up traps (June), collecting data, removing traps (September)
- Outreach and Education:
  - Interviews (TV/Radio/Newspaper/Magazines):
    - N/A
  - Outreach materials (Pamphlets/ brochures/ posters):
    - Pamphlets and other materials were created with the "Don't move fire wood" message to increase awareness and distributed at various conferences, the Colorado State Fair and other trainings
  - Publications:
    - N/A
  - Public Service Announcements (PSA):
    - N/A
- Meetings:
  - Conference calls: Regular WSS conference calls
  - Conferences: None
  - Webinars:
    - Nature Conservancy: Regulations that apply to firewood
    - ESRI: Agricultural Solutions
- Training: Plant Heath care workshop, Fort Collins
- Other: Monthly/ bimonthly meetings with Front Range Urban Forestry Council

B. If appropriate, explain why objectives were not met  
All objectives were met

C. Where appropriate, explain any cost overruns or unobligated funds in excess of \$1,000. \*

There were no unobligated funds associated with this project

- D. Supporting Documents  
N/A

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*\*indicates information is required per 7 CFR 3016.40 and 7 CFR 3019.51*

Approved and signed by:

\_\_\_\_\_  
**Scott Koehler signing for:  
Duane Sinning, SPRO**

**Date:** \_\_\_\_\_

\_\_\_\_\_  
**Pat McPherran**

**Date:** \_\_\_\_\_