Northeast Montana Wetland Management District

Anderson, Dog Leg, Gjesdal East, Goose Lake, North Root, Rabenberg and State Line Waterfowl Production Areas

Benton Lake ISST

Accomplishments

Site Surveyed for Baby's Breath	Total Survey Acres[1]	Survey Acres Infested[2]	Acres Treated[3]
Anderson WPA	54.82	0.16	0.16
Dog Leg WPA	32.24	0.02	0.02
Gjesdal East WPA	3.90	0.005	0.005
Goose Lake WPA	272.22	1.32	1.32
North Root WPA	20.42	0.05	0.05
Rabenberg WPA	290.14	3.50	3.50
State Line WPA	64.72	0.68	0.68
District Totals	**738.46**	**5.74**	**5.74**

[1] Area covered during the course of weed management activities regardless of presence or absence of target weed species as measured by perimeter in GIS.
[2] Area occupied by weed species within the survey area that does not contain the space between individuals or populations (i.e. net infestation size) as measured by GPS feature for monitoring and treatment combined, but areas in common not additive.
[3] The area or subset of infested area that has received some form of treatment as measured by GPS feature.

Highlights

Schedule

Dates	Project Type	Target Species	Size of Crew	Project Notes
19-June-2012	EDRR	Baby's breath	2	Survey and treat baby's breath on Anderson and Dog Leg Waterfowl Production Areas and begin work on Rabenberg Waterfowl Production Area.
19-June-2012			1	Survey and treat baby's breath on Gjesdal East and State Line Waterfowl Production Areas and begin work on Rabenberg Waterfowl Production Area.
20-June-2012	EDRR	Baby's breath	2	Survey and treat baby's breath on Rabenberg and North Root Waterfowl Production Areas.
21-June-2012	EDRR	Baby's breath	2	Survey and treat baby's breath on Goose Lake WPA.

Coordination and Cooperation

- Coordinated with refuge staff, Damon Taylor, for treatment priorities and site logistics.

- Treatment priorities were: (1) cover both portions of Goose Lake that had been grazed on a rotational basis. (2) cover all accessible areas of Rabenberg, and (3) complete all other sites as time permits covering areas based on historical survey and treatment data.
- On Goose Lake WPA, rotational weed treatments of grazing and herbicide application were started in 2010. During that year, the ISST sprayed in the northern portion of the WPA while cows were grazed in the southern region. In 2011, when ISST arrived cows were being grazed in the northern region of the site, so the crew worked only the south east corner and along the access roadway. This year ISST covered both areas because cattle were not going to be in these areas.

State Line WPA. Photo by Eric Lassance.

- Rabenberg and Goose Lake WPAs were originally going to be managed first, but poor weather on the first day shifted work to Anderson, Dog Leg, State Line, and Gjesdal East WPAs. It made more sense to conduct mechanical management at the sites with smaller infestations first.

Prevention and Education

- On all sites, surveys were conducted along roadways which are commonly known vectors for the spread of noxious weeds.
- Focused surveys for treatment of baby's breath were also conducted within areas of previously known populations in an effort to prevent the spread of this weed to adjacent properties.
- Baby's breath typically blooms in late July or August and can be treated with chemical or mechanical treatments.
    - This plant has sparse foliage and a deep root system making chemical control more difficult. Appropriate timing, chemical makeup and concentration of the application are all important factors when using this method.
    - Manual removal of the plant prior to seeding can be highly effective for control. Because of the deep roots, one must sever the root below the crown (6-10 inches below the soil) to kill the plant.
- Work was slowed after noticing birds flushing from tall grass to minimize disturbance.

Early Detection and Rapid Response

- Many of the WPAs have small infestations that can still be eradicated with consistent treatment, while a few have fairly large infestations that are more of a containment objective.
- These projects were initiated as early detection and rapid response. Systematically surveying the entire management area (as opposed to going point-to-point) allows the ISST to detect new populations when they are most susceptible to management (EDRR). In addition, having consistent survey areas allows the ISST to track populations over time to determine effectiveness and inform adaptive management strategies.

Inventory and Monitoring

- ISST searched 738.46 acres (546.82 acres in 2011) within the WPAs with an emphasis on roadsides, historical baby's breath infestations and areas that had been surveyed in previous years.
- Within all WPAs, baby's breath presence decreased with distance from roads and accompanying disturbed areas.
- At all WPAs, Baby's breath was not as common in areas with thick tall grass. Favorable conditions were disturbed soil and drier hillsides.
- The only other weed species noted by crew members at all WPAs, but not targeted was Canada thistle.

Management

- ISST treated 5.74 acres of baby's breath in the WPAs.

- Treatments were shifted to late June in 2012 compared to September in 2011. Plants were actively growing in June whereas in 2011 most plants had already senesced by the time treatments were made.
- 5.74 acres is most likely an accurate reflection of the current amount of infested acreage within the survey area compared to 2011 numbers (0.31 acres).

Chase Burns digging up baby's breath at Rabenber WPA. Photo by Eric Lassance.

Northeast Montana Wetland Management District

Anderson WPA

Benton Lake ISST

Accomplishments

Weed Species	Total Survey Acres[1]	Survey Acres Infested[2]	Acres Treated[3]
Baby's breath	54.82	0.16	0.16
Project Site Totals	**54.82**	**0.16**	**0.16**

[1] Area covered during the course of weed management activities regardless of presence or absence of target weed species as measured by perimeter in GIS.
[2] Area occupied by weed species within the survey area that does not contain the space between individuals or populations (i.e. net infestation size) as measured by GPS feature for monitoring and treatment combined, but areas in common not additive.
[3] The area or subset of infested area that has received some form of treatment as measured by GPS feature.

Highlights

Schedule

Dates	Project Type	Target Species	Size of Crew	Project Notes
19-June-2012	EDRR	Baby's breath	2	Point to point survey and treatment of historic populations within the WPA and mechanical and chemical treatment of infestations.

Coordination and Cooperation

- Coordinated with refuge staff member Damon Taylor for treatment priorities and site logistics.

Prevention and Education

- Focused surveys for treatment of baby's breath were conducted along access roads and around all previously known locations in an effort to prevent its spread to adjacent properties.
- Baby's breath typically blooms in late July and can be treated with chemical or mechanical treatments.
    - This plant has sparse foliage and a deep root system making chemical control more difficult. Appropriate timing, chemical makeup and concentration of the application are all important factors when using this method.
    - Manual removal of the plant prior to seeding can be highly effective for control. Because of the deep roots, one must sever the root below the crown (6-10 inches below the soil) to kill the plant.

Early Detection and Rapid Response

- This project was initiated as early detection and rapid response in 2006, when one population of baby's breath was inventoried along the southern access road and then treated in 2008.Some progress has been made yet the refuge should consider full surveys in 2013 or 2014 since this year was only point-to-point and there hasn't been a recent comprehensive survey. Systematically surveying the entire management area (as opposed to going point-to-point) allows the ISST to

detect new populations when they are most susceptible to management (EDRR). In addition, having consistent survey areas allows the ISST to track populations over time to determine effectiveness and inform adaptive management strategies.

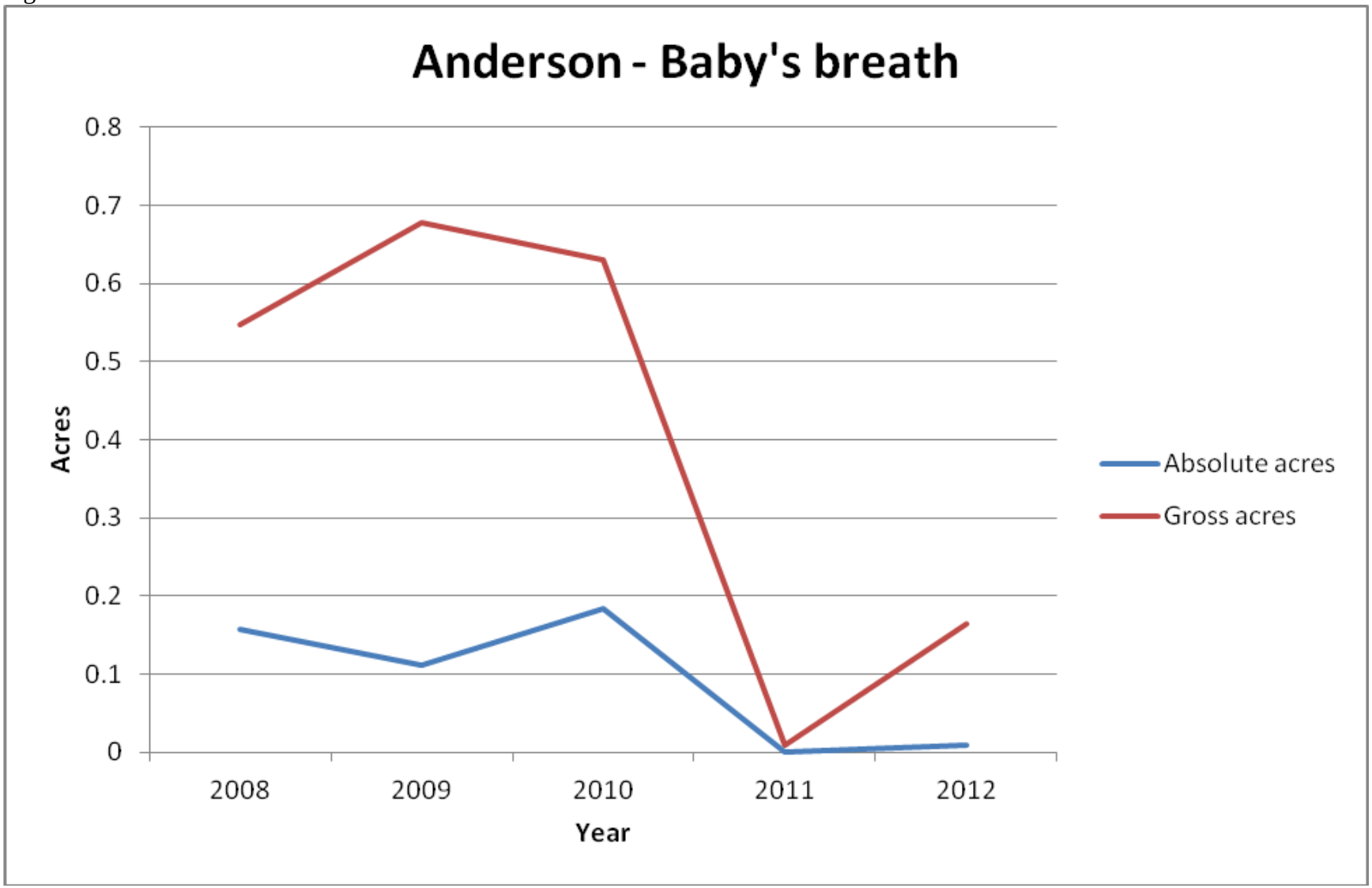
Inventory and Monitoring

- ISST searched 54.82 acres (33.26 acres in 2011) within Anderson WPA with an emphasis on historical baby's breath infestations and areas that had been surveyed in previous years.
  - Plants found were mostly in the same areas baby's breath has been found since 2009.
  - Some historical populations no longer had infestations, especially north of the road.
- The only weed species noted by crew members, but not targeted was Canada thistle.

Management

- ISST treated 0.16 acres of baby's breath over the course of a 2 hour visit.
  - Treated infestations were primarily along the access road running along the southern most boundary.
  - ISST members chemically treated baby's breath for one hour before it started to rain.
  - The rain event may have affected effectiveness of chemical.
  - Remaining infestations were dug up with a shovel.
  - Treatments were shifted to late June in 2012 compared to September in 2011. Plants were actively growing in June whereas in 2011 most plants had already senesced by the time treatments were made.
  - 0.16 acres is most likely an accurate reflection of the current amount of infested acreage within the survey area compared to 2011 numbers (0.01 acres).
  - Over a similar survey area in 2010, ISST treated 0.63 acres. Compared to 2012 June treatments this is an overall reduction of 74.6% (Figure 1.)

Figure 1.


Anderson - Baby's breath
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Acres
2008
2009
2010
2011
2012
Year
Absolute acres
Gross acres

Compliments of the
MONTANA DEPARTMENT OF AGRICULTURE
AGRICULTURAL SCIENCES DIVISION
PO BOX 200201
HELENA, MT 59620-0201
Phone 406-444-3730

DAILY PESTICIDE APPLICATION RECORD

BUSINESS	LICENSE#
U.S. Fish and Wildlife Service	103749-15
NAME	ADDRESS (Refuge or WPA)
Benton Lake NWR Invasive Species Strike Team	Anderson WPA
CITY, STATE, ZIP	PHONE
Great Falls, MT 59404	406-727-7400 Ext. 213

	APPLICATION #1	APPLICATION #2
Applicator/Operator Name (s)	Levi Morgan	Chase Burns
Date	6-19-12	6-19-12
County	Sheridan	Sheridan
Time Start/Stop	0800 - 0900	0800 - 0900
Temperature	60°F	60°F
Relative Humidity	69%	69%
Wind Speed/Direction (from)	1.6 mph/east	1.6 mph/east
Pesticide Manufacturer	Dupont	Dupont
Trade Name	Escort XP	Escort XP
EPA Reg # or Formulation	352-439	352-439
Rate: Product/Diluent Per Acre	1 oz/acre	1 oz/acre
Amount of Chemical Applied	.075 oz.	.008 oz.
Equipment Used (atv,backpack,truck,saw)	ATV #1 handgun (80 gpa)	ATV #10 handgun (64 GPA)
Bio-Control (genus species)		
# released / acre		
Mechanical (mow,hand-pull)		
Plant Phenology & Stage	Baby's breath	Baby's breath
Dominant Pest(s)	Leaf-on	Leaf-on
Equipment Used		
Acres/Area Treated or # of plants	Spot treatment, gps mapped	Spot treatment, gps mapped
GPS Filename		

Location #1 (Site specific description)

Transected historical points along N. Westby Rd. along southern border of WPA – transected previous survey area south of oil station.

Location #2 (Site specific description)

Same

COMMENTS/MAP: (any surfactant or dye used, PUP number, concerns with weather prior or post treatment, DETAILS, etc….)
-Rain from 9:30-11:00, may have affected what was sprayed

Shield IVM @ 2 oz / 10 gal
Syl-tac @ 1.28 oz / 10 gal

	Start	End	Total
LM #1	10 gal	4 gal	6 gal
CB #10	10 gal	9.5 gal	.5 gal

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HELENA, MT 59620-0201
Phone 406-444-3730

DAILY PESTICIDE APPLICATION RECORD

BUSINESS U.S. Fish and Wildlife Service	LICENSE# 103749-15
NAME Benton Lake NWR Invasive Species Strike Team	ADDRESS (Refuge or WPA) Anderson WPA
CITY, STATE, ZIP Great Falls, MT 59404	PHONE 406-727-7400 Ext. 213

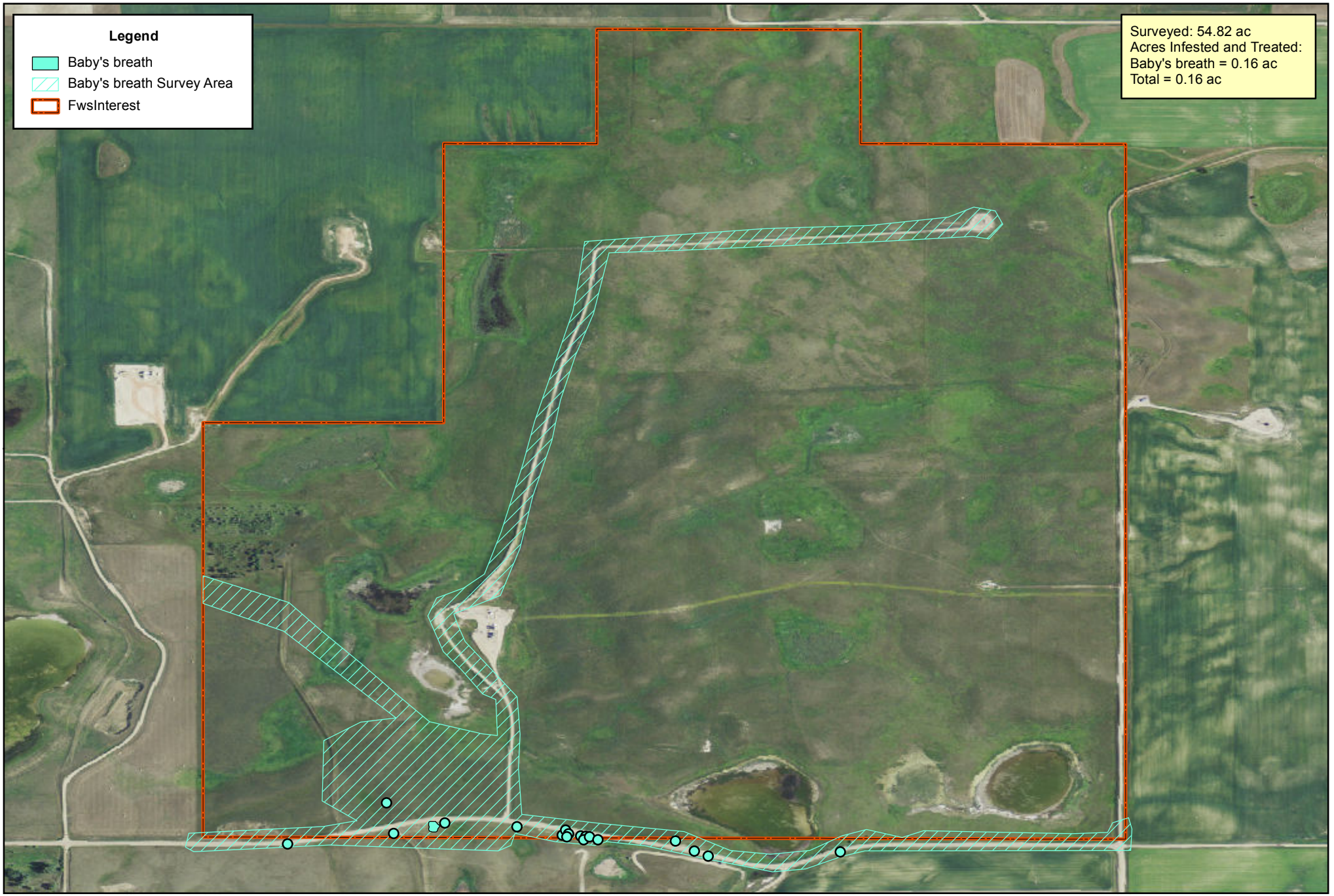
	APPLICATION #1	APPLICATION #2
Applicator/Operator Name (s)	Levi Morgan	Chase Burns
Date	6-19-12	6-19-12
County	Sheridan	Sheridan
Time Start/Stop	0900 - 1015	0900 - 1015
Temperature		
Relative Humidity		
Wind Speed/Direction (from)		
Pesticide Manufacturer		
Trade Name		
EPA Reg # or Formulation		
Rate: Product/Diluent Per Acre		
Amount of Chemical Applied		
Equipment Used (atv,backpack,truck,saw)	shovel	shovel
Bio-Control (genus species)		
# released / acre		
Mechanical (mow,hand-pull)	Dig, handpull	Dig, handpull
Plant Phenology & Stage	Baby's breath	Baby's breath
Dominant Pest(s)	Leaf-on	Leaf-on
Equipment Used		
Acres/Area Treated or # of plants	Spot treatment, gps mapped	Spot treatment, gps mapped
GPS Filename		

Location #1 (Site specific description) -While raining looked for plants to dig along road to oil well and near areas we had just sprayed. Did not find much -Completed historical baby's breath areas at Anderson WPA Location #2 (Site specific description) Same	COMMENTS/MAP: (any surfactant or dye used, PUP number, concerns with weather prior or post treatment, DETAILS, etc….) -Rain at 9:15 am, may have affected what was sprayed

U.S. Fish & Wildlife Service

MOYOCO Invasive Species Strike Team

Anderson WPA - 2012 Survey Acres Infested & Treated



Miles

0 0.125 0.25 0.5

Reference image from 2009 Montana NAIP Imagery

Northeast Montana Wetland Management District - 1 of 7 Maps

Northeast Montana Wetland Management District

Dog Leg WPA

Benton Lake ISST

Accomplishments

Weed Species	Total Survey Acres[1]	Survey Acres Infested[2]	Acres Treated[3]
Baby's breath	32.24	0.02	0.02
Project Site Totals	**32.24**	**0.02**	**0.02**

[1] Area covered during the course of weed management activities regardless of presence or absence of target weed species as measured by perimeter in GIS.
[2] Area occupied by weed species within the survey area that does not contain the space between individuals or populations (i.e. net infestation size) as measured by GPS feature for monitoring and treatment combined, but areas in common not additive.
[3] The area or subset of infested area that has received some form of treatment as measured by GPS feature.

Highlights

Schedule

Dates	Project Type	Target Species	Size of Crew	Project Notes
19-June-2012	EDRR	Baby's breath	2	Point to point survey and treatment of historic populations within the WPA and mechanical treatment of infestations.

Coordination and Cooperation

- Coordinated with refuge biological technician, Damon Taylor, for treatment priorities and site logistics.

Prevention and Education

- Baby's breath was treated at previously known locations and a surrounding buffer area in an effort to prevent its spread to adjacent properties.
- Baby's breath typically blooms in late July and can be treated with chemical or mechanical treatments.
    - This plant has sparse foliage and a deep root system making chemical control more difficult. Appropriate timing, chemical makeup and concentration of the application are all important factors when using this method.
    - Manual removal of the plant prior to seeding can be highly effective for control. Because of the deep roots, one must sever the root below the crown (6-10 inches below the soil) to kill the plant.

Early Detection and Rapid Response

- This project was initiated as early detection and rapid response in 2008, when several small populations of baby's breath were treated within the WPA. Some progress has been made yet the refuge should consider full surveys in 2013 or 2014 since this year was only point-to-point and the last comprehensive survey was in 2009. Systematically surveying the entire management area (as opposed to going point-to-point) allows the ISST to detect new populations when they are most

susceptible to management (EDRR). In addition, having consistent survey areas allows the ISST to track populations over time to determine effectiveness and inform adaptive management strategies.

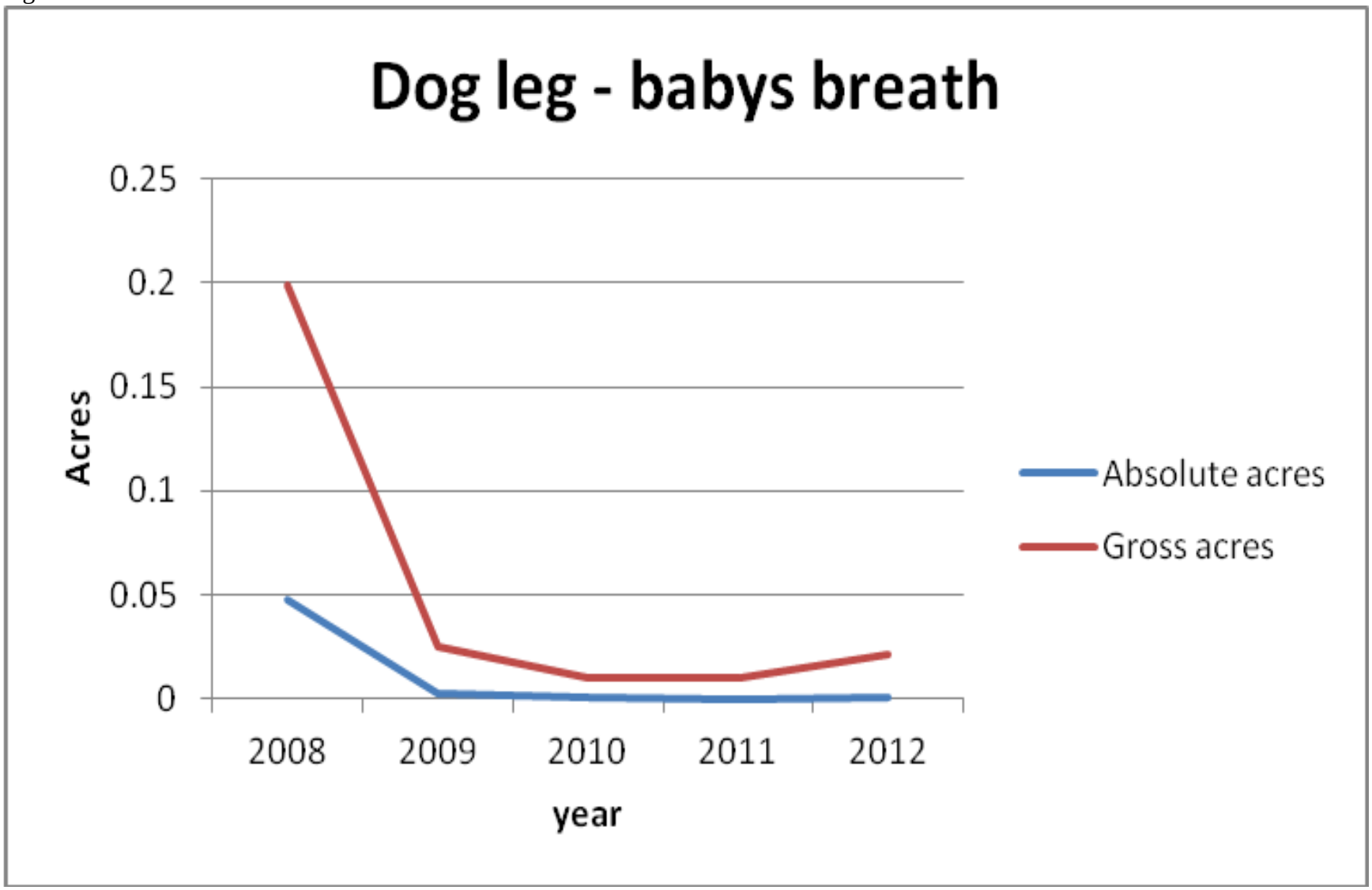
Inventory and Monitoring

- ISST searched 32.24 acres (34.26 acres in 2011) within Dog Leg WPA with an emphasis on historical baby's breath infestations and areas that had been surveyed in previous years.
  - Plants have been found in the same area along the lake since 2009.
  - Some historical populations along the lake no longer existed, particularly the northern most populations.
  - Three new populations were found west of previously treated infestations within the WPA.
- The only weed species noted by crew members, but not targeted was Canada thistle.

Management

- ISST treated 0.02 acres of baby's breath over the course of a 2 hour visit.
  - Infestations were sparse within the WPA.
  - ISST members conducted surveys on foot because the site was very wet and there were a lot of nesting birds in the area.
  - Infestations were dug up with a shovel.
  - Treatments were shifted to late June in 2012 compared to September in 2011. Plants were actively growing in June whereas in 2011 most plants had already senesced by the time treatments were made.
  - Over a similar survey area in 2010, ISST treated 0.01 acres compared to 2012 June treatments. This slight increase most likely due to limited treatment in 2011 (Figure 1.)

Figure 1.


Dog leg - babys breath
0.25
0.2
0.15
0.1
0.05
0
Acres
2008
2009
2010
2011
2012
year
Absolute acres
Gross acres

Compliments of the
MONTANA DEPARTMENT OF AGRICULTURE **DAILY PESTICIDE APPLICATION RECORD**
AGRICULTURAL SCIENCES DIVISION
PO BOX 200201
HELENA, MT 59620-0201
Phone 406-444-3730

BUSINESS U.S. Fish and Wildlife Service	LICENSE# 103749-15
NAME Benton Lake NWR Invasive Species Strike Team	ADDRESS (Refuge or WPA) Dogleg WPA
CITY, STATE, ZIP Great Falls, MT 59404	PHONE 406-727-7400 Ext. 213

	APPLICATION #1	APPLICATION #2
Applicator/Operator Name (s)	Levi Morgan	Chase Burns
Date	6-19-12	6-19-12
County	Sheridan	Sheridan
Time Start/Stop	1040 – 1250	1040 – 1250
Temperature	73°F	73°F
Relative Humidity	40%	40%
Wind Speed/Direction (from)	3mph/west	3mph/west
Pesticide Manufacturer		
Trade Name		
EPA Reg # or Formulation		
Rate: Product/Diluent Per Acre		
Amount of Chemical Applied		
Equipment Used (atv,backpack,truck,saw)	Shovel	Shovel
Bio-Control (genus species)		
# released / acre		
Mechanical (mow,hand-pull)	Digging	Digging
Plant Phenology & Stage	Leaf-on	Leaf-on
Dominant Pest(s)	Baby's breath	Baby's breath
Equipment Used		
Acres/Area Treated or # of plants	Spot treatment, gps mapped	Spot treatment, gps mapped
GPS Filename		

Location #1 (Site specific description)
-Historical populations at Dogleg, along lake shore and then surveyed previous survey areas.

Location #2 (Site specific description)

-Transected and went to historical points on south side of WPA.

COMMENTS/MAP: (any surfactant or dye used, PUP number, concerns with weather prior or post treatment, DETAILS, etc….)

-Digging due to rain

	Start	End	Total

U.S. Fish & Wildlife Service

MOYOCO Invasive Species Strike Team

Dog Leg WPA - 2012 Survey Acres Infested & Treated

0 0.1 0.2 0.4 Miles

Reference image from 2009 Montana NAIP Imagery

Northeast Montana Wetland Management District - 2 of 7 Maps

Northeast Montana Wetland Management District

Gjesdal East WPA

Benton Lake ISST

Accomplishments

Weed Species	Total Survey Acres[1]	Survey Acres Infested[2]	Acres Treated[3]
Baby's breath	3.90	0.005	0.005
Project Site Totals	**3.90**	**0.005**	**0.005**

[1] Area covered during the course of weed management activities regardless of presence or absence of target weed species as measured by perimeter in GIS.
[2] Area occupied by weed species within the survey area that does not contain the space between individuals or populations (i.e. net infestation size) as measured by GPS feature for monitoring and treatment combined, but areas in common not additive.
[3] The area or subset of infested area that has received some form of treatment as measured by GPS feature.

Highlights

Schedule

Dates	Project Type	Target Species	Size of Crew	Project Notes
19-June-2012	EDRR	Baby's breath	1	Point to point survey and treatment of historic populations within the WPA and chemical treatment of infestations.

Coordination and Cooperation

- Coordinated with refuge biological technician Damon Taylor for treatment priorities and site logistics.


Gjesdal East WPA. Photo by Eric Lassance.

Prevention and Education

- Baby's breath was treated along the access road on the southern boundary of the WPA.
- Baby's breath typically blooms in late July and can be treated with chemical or mechanical treatments.
  - This plant has sparse foliage and a deep root system making chemical control more difficult. Appropriate timing, chemical makeup and concentration of the application are all important factors when using this method.
  - Manual removal of the plant prior to seeding can be highly effective for control. Because of the deep roots, one must sever the root below the crown (6-10 inches below the soil) to kill the plant.

Early Detection and Rapid Response

- This project was initiated as early detection and rapid response in 2009, when a single population of baby's breath was treated outside the WPA along an access road. Some progress has been made yet the refuge should consider full surveys in 2013 or 2014 since this year was only point-to-point and the last comprehensive survey was in 2009. Systematically surveying the entire management

area (as opposed to going point-to-point) allows the ISST to detect new populations when they are most susceptible to management (EDRR). In addition, having consistent survey areas allows the ISST to track populations over time to determine effectiveness and inform adaptive management strategies.

Inventory and Monitoring

- ISST searched 3.90 acres (9.38 acres in 2011) of historical baby's breath areas near Gjesdal East WPA.
  - Only one plant was found.
  - Two historical populations no longer had plants.
- The only weed species noted by crew members, but not targeted was Canada thistle.

Management

- ISST treated 0.005 acres of baby's breath over the course of a half hour visit.
  - Treated infestation was along the access road running along the southern most boundary.
  - Treatments were shifted to late June in 2012 compared to September in 2011. Plants were actively growing in June whereas in 2011 most plants had already senesced by the time treatments were made.
  - 0.005 acres is most likely an accurate reflection of the current infested acreage within the survey area compared to 2011 numbers (0.00 acres) since the site visit was later and may have missed plants.
  - Over a similar survey area in 2010, ISST treated 0.01 acres compared to 2012 July treatments, suggesting an overall reduction of 50%.

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HELENA, MT 59620-0201
Phone 406-444-3730

DAILY PESTICIDE APPLICATION RECORD

BUSINESS	LICENSE#
U.S. Fish and Wildlife Service	103749-15
NAME	ADDRESS (Refuge or WPA)
Benton Lake NWR Invasive Species Strike Team	Gjesdal East WPA
CITY, STATE, ZIP	PHONE
Great Falls, MT 59404	406-727-7400 Ext. 213

	APPLICATION #1	APPLICATION #2
Applicator/Operator Name (s)	Eric Lassance	
Date	6/19/12	
County	Sheridan	
Time Start/Stop	1500 – 1530	
Temperature	60°F	
Relative Humidity	69%	
Wind Speed/Direction (from)	1.6 mph/east	
Pesticide Manufacturer	Dupont	
Trade Name	Escort XP	
EPA Reg # or Formulation	352-439	
Rate: Product/Diluent Per Acre	1 oz/acre	
Amount of Chemical Applied	.0001 oz	
Equipment Used (atv,backpack,truck,saw)	ATV #8 handgun (80 GPA)	
Bio-Control (genus species)		
# released / acre		
Mechanical (mow,hand-pull)		
Plant Phenology & Stage	Leaf-on, pre-flower	
Dominant Pest(s)	Baby's breath	
Equipment Used	Handgun	
Acres/Area Treated or # of plants	Spot treatment, gps mapped	Spot treatment, gps mapped
GPS Filename		

Location #1 (Site specific description)

-Entire southern roadside area.
-Historical baby's breath area.
-Completed historical treated areas

Location #2 (Site specific description)

COMMENTS/MAP: (any surfactant or dye used, PUP number, concerns with weather prior or post treatment, DETAILS, etc….)

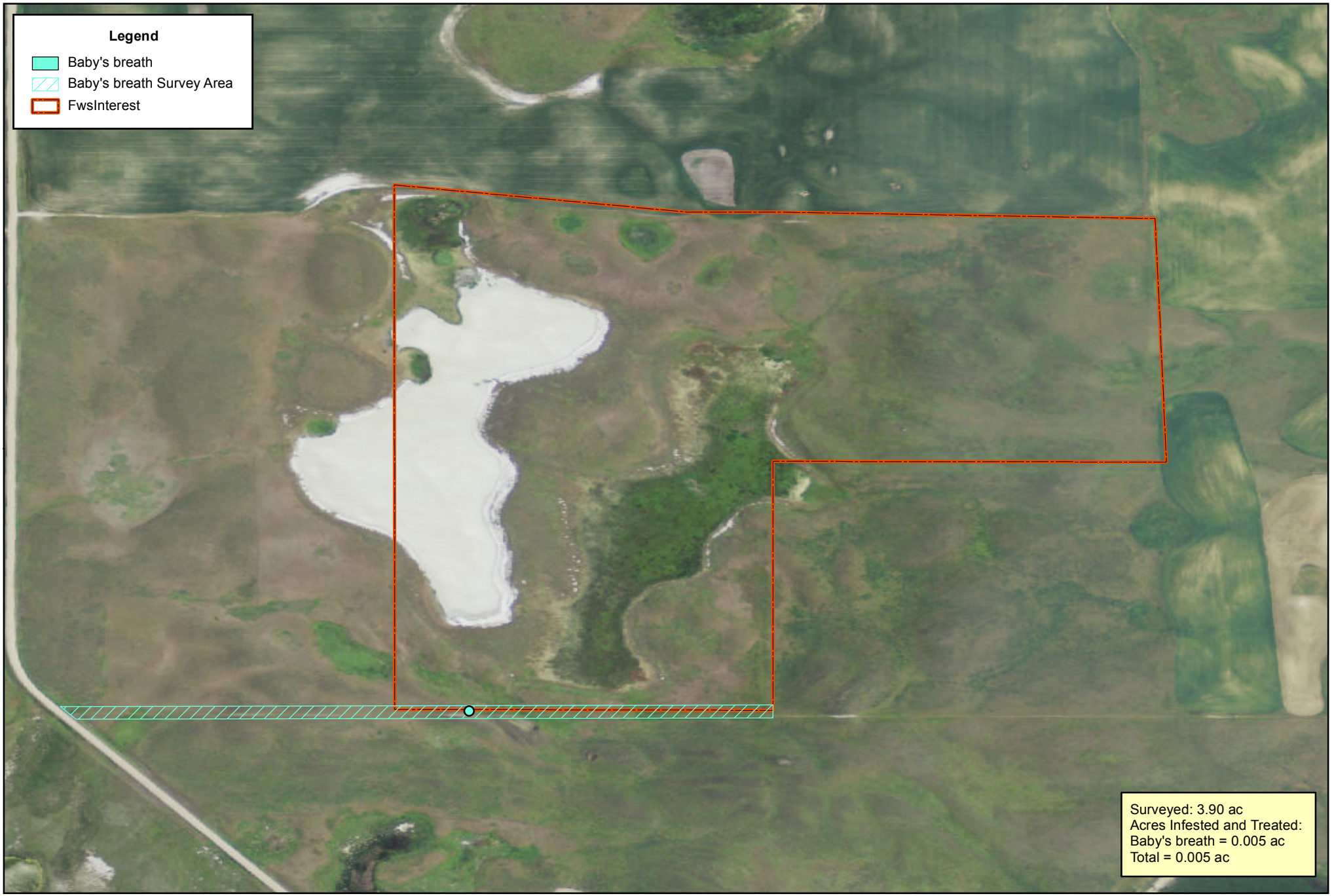
Shield IVM @ 2 oz / 10 gal
Syl Tak @ 1.28 oz / 10 gal

	Start	End	Total
EL #8	1 gal	.99 gal	.01 gal

U.S. Fish & Wildlife Service

MOYOCO Invasive Species Strike Team

Gjesdal East WPA - 2012 Survey Acres Infested & Treated



N

0 0.1 0.2 0.4 Miles

Reference image from 2009 Montana NAIP Imagery

Northeast Montana Wetland Management District - 3 of 7 Maps

Northeast Montana Wetland Management District

Goose Lake WPA

Benton Lake ISST

Accomplishments

Weed Species	Total Survey Acres[1]	Survey Acres Infested[2]	Acres Treated[3]
Baby's breath	272.22	1.32	1.32
Project Site Totals	**272.22**	**1.32**	**1.32**

[1] Area covered during the course of weed management activities regardless of presence or absence of target weed species as measured by perimeter in GIS.
[2] Area occupied by weed species within the survey area that does not contain the space between individuals or populations (i.e. net infestation size) as measured by GPS feature for monitoring and treatment combined, but areas in common not additive.
[3] The area or subset of infested area that has received some form of treatment as measured by GPS feature.

Highlights

Schedule

Dates	Project Type	Target Species	Size of Crew	Project Notes
21-June-2012	EDRR	Baby's breath	3	Point to point survey and treatment of historic populations within the WPA and chemical treatment of infestations.

Coordination and Cooperation

- Coordinated with refuge biological technician, Damon Taylor, for treatment priorities and site logistics.
  - In 2010, rotational weed treatments of grazing and herbicide application were started. During that year, the ISST sprayed in the northern portion of the WPA while cows were grazed in the southern region.
  - In 2011, when ISST arrived cows were being grazed in the northern region of the site, so the crew worked only the south east corner and along the access roadway. The crew covered new areas not previously surveyed by ISST, moving northward to the south edge of the grazing fence line.
  - In 2012, no grazing was occurring at either site; therefore ISST treated both portions that had been grazed in 2010 and 2011.

Goose Lake WPA. Photo by Eric Lassance.

Prevention and Education

- Baby's breath were treated along access roads and all previously known locations in an effort to prevent its spread to adjacent properties.

- Baby's breath typically blooms in late July and can be treated with chemical or mechanical treatments.
    - This plant has sparse foliage and a deep root system making chemical control more difficult. Appropriate timing, chemical makeup and concentration of the application are all important factors when using this method.
    - Manual removal of the plant prior to seeding can be highly effective for control. Because of the deep roots, one must sever the root below the crown (6-10 inches below the soil) to kill the plant.
- Work was slowed after noticing birds flushing from tall grass to minimize disturbance.
- Baby's breath size and phenology differed along the roadsides versus within the WPA. Plants along the road were taller, robust, and almost flowering. For the most part, plants within the WPA were small and in the leaf-on growth stage

Early Detection and Rapid Response

- This project was initiated as early detection and rapid response in 2006, when populations of baby's breath were inventoried at the northeast corner of the WPA. Some progress has been made yet the refuge should consider full surveys in 2013 or 2014 since this year was only point-to-point and there hasn't been a recent comprehensive survey. Systematically surveying the entire management area (as opposed to going point-to-point) allows the ISST to detect new populations when they are most susceptible to management (EDRR). In addition, having consistent survey areas allows the ISST to track populations over time to determine effectiveness and inform adaptive management strategies.

Inventory and Monitoring

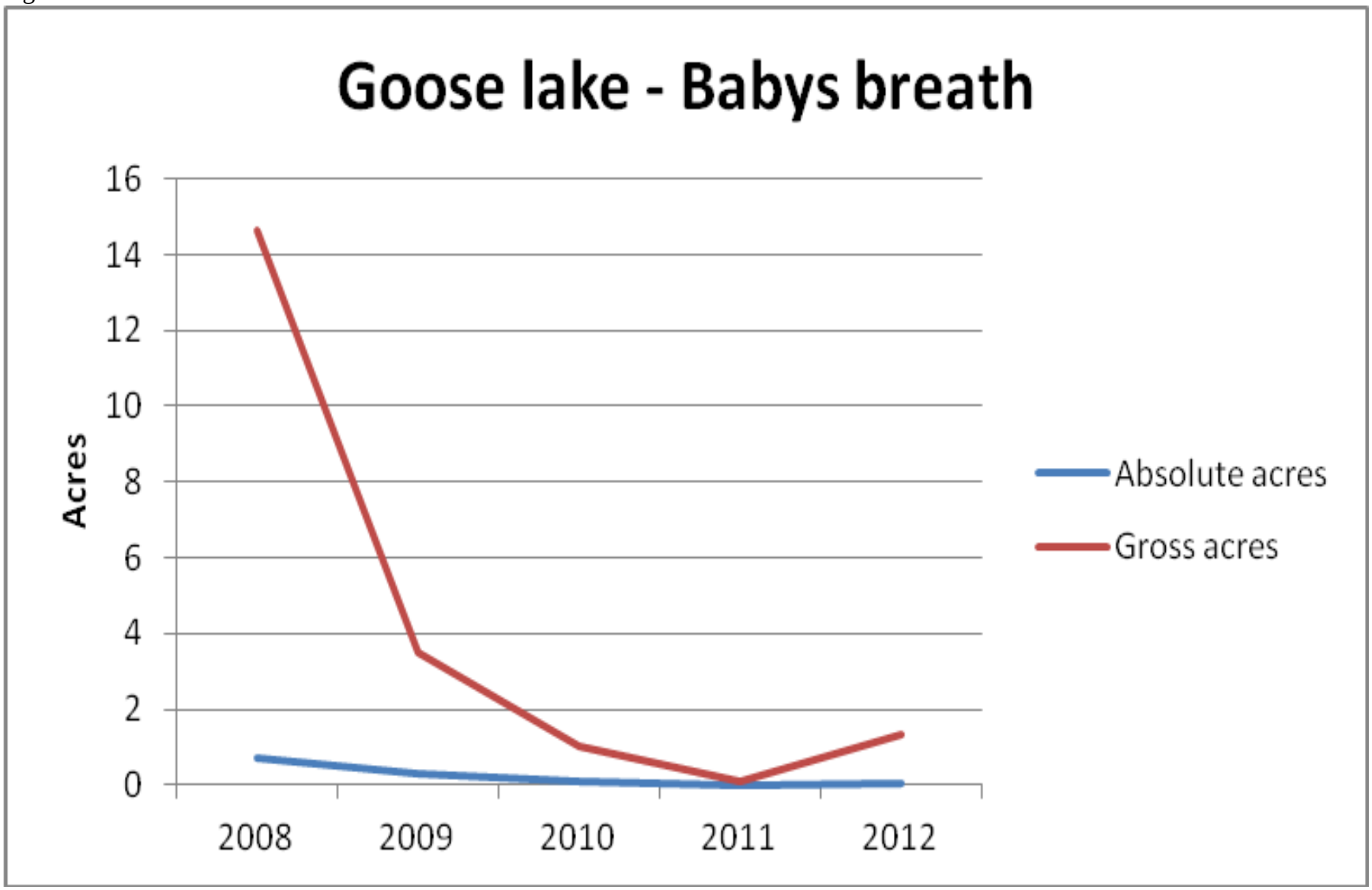
- ISST searched 272.22 acres (80.21 acres in 2011) within Goose Lake WPA primarily visiting historical baby's breath infestations and areas that had been surveyed in previous years.
- Baby's breath presence decreased with distance from the road and accompanying disturbed areas.
- Baby's breath had previously been documented in 2010 along a lakeshore and in a spot between the lake and the infested road. These sites were searched thoroughly and no plants were found in 2012.
- A tremendous amount of the 2009 and 2010 historically infested sites did not have any plants.
- Baby's breath appeared to be less common in areas with thick tall grass.
- The only additional weed species noted by crew members, but not targeted was Canada thistle.

Management

- ISST treated 1.32 acres of baby's breath over the course of a full day.
    - Baby's breath was mainly treated near the road bordering the eastside of the WPA.
    - Treatments were shifted to late June in 2012 compared to September 2011. Plants were actively growing in June whereas in 2011 most plants had already senesced by the time treatments were made.
    - 1.32 acres is most likely an accurate reflection of the current infested acreage within the survey area compared to 2011 numbers (0.09 acres).
    - Over a similar survey area in 2009, ISST treated 3.45 acres compared to 2012. This is an overall reduction of 61.74% (Figure 1.)

Chemically treated baby's breath at Goose Lake WPA. Photo by Eric Lassance.

Figure 1.


Goose lake - Babys breath
Acres
16
14
12
10
8
6
4
2
0
2008
2009
2010
2011
2012
Absolute acres
Gross acres

Compliments of the
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PO BOX 200201
HELENA, MT 59620-0201
Phone 406-444-3730

DAILY PESTICIDE APPLICATION RECORD

BUSINESS U.S. Fish and Wildlife Service	LICENSE# 103749-15
NAME Benton Lake NWR Invasive Species Strike Team	ADDRESS (Refuge or WPA) Goose Lake WPA
CITY, STATE, ZIP Great Falls, MT 59404	PHONE 406-727-7400 Ext. 213

	APPLICATION #1	APPLICATION #2
Applicator/Operator Name (s)	Levi Morgan	Chase Burns
Date	6-21-12	6-21-12
County	Sheridan	Sheridan
Time Start/Stop	0700-1600	0700-1600
Temperature	58°F	58°F
Relative Humidity	65%	65%
Wind Speed/Direction (from)	7 mph/NW	7 mph/NW
Pesticide Manufacturer	Dupont	Dupont
Trade Name	Escort XP	Escort XP
EPA Reg # or Formulation	352-439	352-439
Rate: Product/Diluent Per Acre	1 oz/acre	1 oz/acre
Amount of Chemical Applied	.125 oz	.031 oz
Equipment Used (atv,backpack,truck,saw)	ATV #1 handgun (80GPA)	ATV #10 handgun (64 GPA)
Bio-Control (genus species)		
# released / acre		
Mechanical (mow,hand-pull)		
Plant Phenology & Stage	Leaf-on, pre-flower	Leaf-on, pre-flower
Dominant Pest(s)	baby's breath	baby's breath
Equipment Used		
Acres/Area Treated or # of plants	Spot treatment, gps mapped	Spot treatment, gps mapped
GPS Filename		

Location #1 (Site specific description)
-Northeast corner historical baby's breath going in N to S transects from the eastern fence to the farthest western points of WPA.

Location #2 (Site specific description)
-Transected middle section between Levi and Eric and went to historical baby's breath areas.

COMMENTS/MAP: (any surfactant or dye used, PUP number, concerns with weather prior or post treatment, DETAILS, etc….)

Shield IVM @ 2 oz / 10 gal
Syl Tak @ 1.28 oz / 10 gal

	Start	End	Total
Levi #1	10 gal	0 gal	10 gal
Chase #10	10 gal	8 gal	2 gal

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DAILY PESTICIDE APPLICATION RECORD

BUSINESS U.S. Fish and Wildlife Service	LICENSE# 103749-15
NAME Benton Lake NWR Invasive Species Strike Team	ADDRESS (Refuge or WPA) Goose Lake WPA
CITY, STATE, ZIP Great Falls, MT 59404	PHONE 406-727-7400 Ext. 213

	APPLICATION #1	APPLICATION #2
Applicator/Operator Name (s)	Eric Lassance	
Date	6-21-12	
County	Sheridan	
Time Start/Stop	0700 – 1600	
Temperature	58°F	
Relative Humidity	65%	
Wind Speed/Direction (from)	7 mph/NW	
Pesticide Manufacturer	Dupont	
Trade Name	Escort XP	
EPA Reg # or Formulation	352-439	
Rate: Product/Diluent Per Acre	1 oz/acre	
Amount of Chemical Applied	.04 oz	
Equipment Used (atv,backpack,truck,saw)	ATV #8 handgun (80 GPA)	
Bio-Control (genus species)		
# released / acre		
Mechanical (mow,hand-pull)		
Plant Phenology & Stage	leaf-on, pre-flower	
Dominant Pest(s)	baby's breath	
Equipment Used		
Acres/Area Treated or # of plants	Spot treatment, gps mapped	Spot treatment, gps mapped
GPS Filename		

Location #1 (Site specific description)
-Southern historically surveyed/treated baby's breath
-Historically treated roadsides
-Surveyed central area with Chase for baby's breath.

Location #2 (Site specific description)

COMMENTS/MAP: (any surfactant or dye used, PUP number, concerns with weather prior or post treatment, DETAILS, etc….)

Shield IVM @ 2 oz / 10 gal
Syl Tak @ 1.28 oz / 10 gal

	Start	End	Total
EL #8	10 gal	7 gal	3 gal

U.S. Fish & Wildlife Service

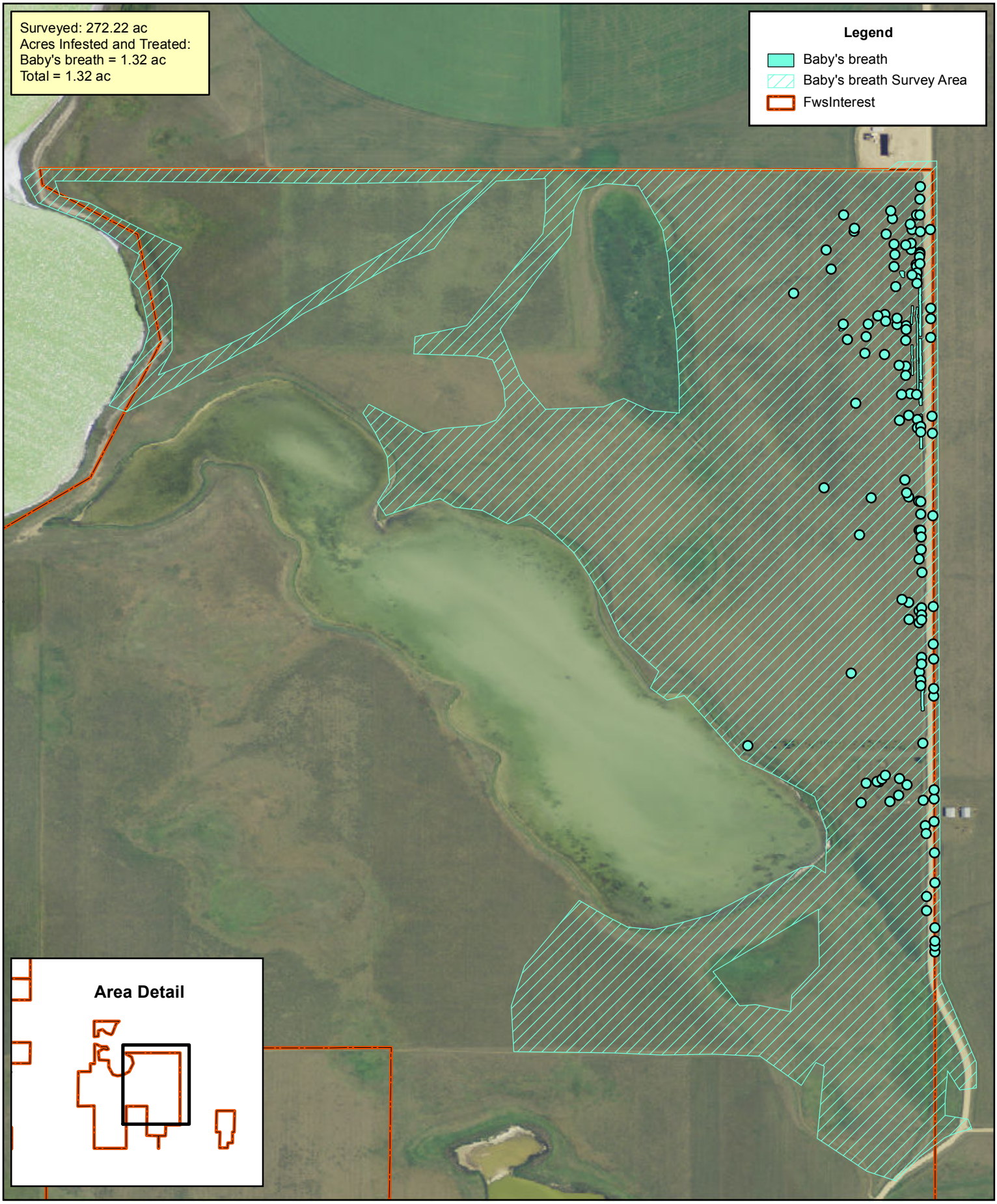
MOYOCO Invasive Species Strike Team

Goose Lake WPA - 2012 Survey Acres Infested & Treated

Surveyed: 272.22 ac
Acres Infested and Treated:
Baby's breath = 1.32 ac
Total = 1.32 ac

Legend

- Baby's breath
- Baby's breath Survey Area
- FwsInterest



Area Detail

N

0 0.1 0.2 0.4 Miles

Reference image from 2009 Montana NAIP Imagery

Northeast Montana Wetland Management District - 4 of 7 Maps

Northeast Montana Wetland Management District

North Root WPA

Benton Lake ISST

Accomplishments

Weed Species	Total Survey Acres[1]	Survey Acres Infested[2]	Acres Treated[3]
Baby's breath	20.42	0.05	0.05
Project Site Totals	**20.42**	**0.05**	**0.05**

[1] Area covered during the course of weed management activities regardless of presence or absence of target weed species as measured by perimeter in GIS.
[2] Area occupied by weed species within the survey area that does not contain the space between individuals or populations (i.e. net infestation size) as measured by GPS feature for monitoring and treatment combined, but areas in common not additive.
[3] The area or subset of infested area that has received some form of treatment as measured by GPS feature.

Highlights

Schedule

Dates	Project Type	Target Species	Size of Crew	Project Notes
20-June-2012	EDRR	Baby's breath	1	Point to point survey and treatment of historic populations within the WPA and chemical treatment of infestations.

Coordination and Cooperation

- Coordinated with refuge biological technician, Damon Taylor, for treatment priorities and site logistics.

Prevention and Education

- Baby's breath was treated along the access roads on the north, east, and west side of the WPA and all previously known locations in an effort to prevent its spread to adjacent properties.
- Baby's breath typically blooms in late July and can be treated with chemical or mechanical treatments.
    - This plant has sparse foliage and a deep root system making chemical control more difficult. Appropriate timing, chemical makeup and concentration of the application are all important factors when using this method.
    - Manual removal of the plant prior to seeding can be highly effective for control. Because of the deep roots, one must sever the root below the crown (6-10 inches below the soil) to kill the plant.

Early Detection and Rapid Response

This project was initiated as early detection and rapid response in 2008, when baby's breath was first treated along access road on the northern boundary of the WPA. Some progress has been made yet the refuge should consider full surveys in 2013 or 2014 since this year was only point-to-point and there hasn't been a recent comprehensive survey. Systematically surveying the entire management area (as opposed to going point-to-point) allows the ISST to detect new populations

when they are most susceptible to management (EDRR). In addition, having consistent survey areas allows the ISST to track populations over time to determine effectiveness and inform adaptive management strategies.

Inventory and Monitoring

- ISST searched 20.42 acres (18.20 acres in 2011) within North Root WPA with an emphasis on historical Baby's breath infestations and areas that had been surveyed in the past.
  - Plants found were mostly in the same area baby's breath was found since 2009.
- The only other weed species noted by crew members, but not targeted was Canada thistle.

Management

- ISST treated 0.05 acres of Baby's breath.
  - Treated infestations were only along the road on the north boundary.
  - Treatments were shifted to late June in 2012 compared to September in 2011. Plants were actively growing in June whereas in 2011 most plants had already senesced by the time treatments were made.
  - 0.05 acres is most likely an accurate reflection of the current amount of infested acreage within the survey area compared to 2011 numbers (0.005 acres) suggesting a small increase probably a result of existing seed bed and possibly treating too late last year.

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DAILY PESTICIDE APPLICATION RECORD

BUSINESS	LICENSE#
U.S. Fish and Wildlife Service	103749-15
NAME	ADDRESS (Refuge or WPA)
Benton Lake NWR Invasive Species Strike Team	Rabenberg WPA
CITY, STATE, ZIP	PHONE
Great Falls, MT 59404	406-727-7400 Ext. 213

	APPLICATION #1	APPLICATION #2
Applicator/Operator Name (s)	Levi Morgan	Levi Morgan
Date	6-19-12	6-19-12
County	Sheridan	Sheridan
Time Start/Stop	1350-1420	1420-1730
Temperature	51°F	51°F
Relative Humidity	40%	40%
Wind Speed/Direction (from)	0	0
Pesticide Manufacturer	Dupont	
Trade Name	Escort XP	
EPA Reg # or Formulation	352-439	
Rate: Product/Diluent Per Acre	1 oz/acre	
Amount of Chemical Applied	.00625 oz	
Equipment Used (atv,backpack,truck,saw)	ATV #1 handgun (80 GPA)	Shovel
Bio-Control (genus species)		
# released / acre		
Mechanical (mow,hand-pull)		dug/hand pulled
Plant Phenology & Stage	Leaf-on	Leaf-on
Dominant Pest(s)	Baby's breath	Baby's breath
Equipment Used		
Acres/Area Treated or # of plants	Spot treatment, gps mapped	Spot treatment, gps mapped
GPS Filename		

Location #1 (Site specific description)

-Transected northeast side of WPA spraying plants found. Couldn't spray long because it rained most of the time there.

Location #2 (Site specific description)

-NE section of Rabenberg
-Dug baby's breath in historically treated and surveyed areas

COMMENTS/MAP: (any surfactant or dye used, PUP number, concerns with weather prior or post treatment, DETAILS, etc….)

-Parked at NE corner of WPA, got unloaded, started spraying, poured rain and a few strikes of lightning.

Shield IVM @ 2 oz / 10 gal
Syl Tak @ 1.28 oz / 10 gal

	Start	End	Total
Levi	10 gal	9.5 gal	.5 gal

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DAILY PESTICIDE APPLICATION RECORD

BUSINESS U.S. Fish and Wildlife Service	LICENSE# 103749-15
NAME Benton Lake NWR Invasive Species Strike Team	ADDRESS (Refuge or WPA) Rabenberg WPA
CITY, STATE, ZIP Great Falls, MT 59404	PHONE 406-727-7400 Ext. 213

	APPLICATION #1	APPLICATION #2
Applicator/Operator Name (s)	Eric Lassance	Chase Burns
Date	6/19/12	6/19/12
County	Sheridan	Sheridan
Time Start/Stop	1600-1730	1350-1730
Temperature		
Relative Humidity		
Wind Speed/Direction (from)		
Pesticide Manufacturer		
Trade Name		
EPA Reg # or Formulation		
Rate: Product/Diluent Per Acre		
Amount of Chemical Applied		
Equipment Used (atv,backpack,truck,saw)	shovel	shovel
Bio-Control (genus species)		
# released / acre		
Mechanical (mow,hand-pull)	Dig/Handpulled	Dig/handpulled
Plant Phenology & Stage	Leaf-on, pre-flower	Leaf-on
Dominant Pest(s)	Baby's breath	Baby's breath
Equipment Used		
Acres/Area Treated or # of plants	Spot treatment, gps mapped	Spot treatment, gps mapped
GPS Filename		

Location #1 (Site specific description)

-NE section of Rabenberg
-Historically treated and surveyed areas

Location #2 (Site specific description)

COMMENTS/MAP: (any surfactant or dye used, PUP number, concerns with weather prior or post treatment, DETAILS, etc….)

-Had to dig because of rain

	Start	End	Total

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DAILY PESTICIDE APPLICATION RECORD

BUSINESS	LICENSE#
U.S. Fish and Wildlife Service	103749-15
NAME	ADDRESS (Refuge or WPA)
Benton Lake NWR Invasive Species Strike Team	Rabenberg WPA
CITY, STATE, ZIP	PHONE
Great Falls, MT 59404	406-727-7400 Ext. 213

	APPLICATION #1	APPLICATION #2
Applicator/Operator Name (s)	Eric Lassance	Chase Burns
Date	6/20/12	6/20/12
County	Sheridan	Sheridan
Time Start/Stop	0645 – 1700	0645 – 1700
Temperature	65°F/67°F	65°F/67°F
Relative Humidity	50%/37%	50%/ 37%
Wind Speed/Direction (from)	7 mph NW/ 2 mph NW	7 mph NW/ 2 mph NW
Pesticide Manufacturer	Dupont	Dupont
Trade Name	Escort XP	Escort XP
EPA Reg # or Formulation	352-439	352-439
Rate: Product/Diluent Per Acre	1 oz/acre	1 oz/acre
Amount of Chemical Applied	.125 oz	.160 oz
Equipment Used (atv,backpack,truck,saw)	ATV #8 (80 GPA)	ATV #10 (64 GPA)/Shovel
Bio-Control (genus species)		
# released / acre		
Mechanical (mow,hand-pull)		Dig,handpull
Plant Phenology & Stage	Leaf-on, pre-flower	Pre-flower
Dominant Pest(s)	Baby's breath	Baby's breath
Equipment Used	Handgun	ATV/dig
Acres/Area Treated or # of plants	Spot treatment, gps mapped	Spot treatment, gps mapped
GPS Filename		

Location #1 (Site specific description)
-NW section of Rabenberg is disturbed oil and gas area.
-Entire southern section of WPA.
-Western roadside.
-Completed treatment of baby's breath historical areas

Location #2 (Site specific description)
-Transected north side of WPA with some digging in addition to spraying
-Assisted Eric in SE section of Rabenberg
-Completed treatment of baby's breath historical areas

COMMENTS/MAP: (any surfactant or dye used, PUP number, concerns with weather prior or post treatment, DETAILS, etc….)
-Brief periods of rain sprinkles during the day. Dug up plants during this time.
Shield IVM @ 2 oz / 10 gal
Syl Tak @ 1.28 oz / 10 gal

	Start	End	Total
EL #8	10 gal	0 gal	10 gal
Chase #10	9 gal	0 gal	
	10 gal	9 gal	
			10 gal

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HELENA, MT 59620-0201
Phone 406-444-3730

DAILY PESTICIDE APPLICATION RECORD

BUSINESS U.S. Fish and Wildlife Service	LICENSE# 103749-15
NAME Benton Lake NWR Invasive Species Strike Team	ADDRESS (Refuge or WPA) Rabenberg WPA and North Root WPA
CITY, STATE, ZIP Great Falls, MT 59404	PHONE 406-727-7400 Ext. 213

	APPLICATION #1	APPLICATION #2
Applicator/Operator Name (s)	Levi Morgan	
Date	6-20-12	
County	Sheridan	
Time Start/Stop	0645 – 1700	
Temperature	65°F, 67°F	
Relative Humidity	50%, 37%	
Wind Speed/Direction (from)	7 mph NW, 2 mph NW	
Pesticide Manufacturer	Dupont	
Trade Name	Escort XP	
EPA Reg # or Formulation	352-439	
Rate: Product/Diluent Per Acre	1 oz/acre	
Amount of Chemical Applied	.26 oz	
Equipment Used (atv,backpack,truck,saw)	ATV #1 (80 GPA), shovel	
Bio-Control (genus species)		
# released / acre		
Mechanical (mow,hand-pull)	Dig, handpull	
Plant Phenology & Stage	Leaf-on	
Dominant Pest(s)	baby's breath	
Equipment Used		
Acres/Area Treated or # of plants	Spot treatment, gps mapped	Spot treatment, gps mapped
GPS Filename		

Location #1 (Site specific description)

-Treated baby's breath in northern section of Rabenberg with Chase Burns
-Completed Rabenberg WPA
-Looked for baby's breath along the roads that go through or along North Root WPA and Rabenberg WPA

Location #2 (Site specific description)

COMMENTS/MAP: (any surfactant or dye used, PUP number, concerns with weather prior or post treatment, DETAILS, etc….)
-Brief periods of rain sprinkles during the day. Dug up plants during this time.
-Shield IVM @ 2 oz / 10 gal
-Syl Tak @ 1.28 oz / 10 gal

	Start	End	Total
Levi	4 gal	0 gal	
	10 gal	0 gal	
	10 gal	3 gal	21 gal

U.S. Fish & Wildlife Service

MOYOCO Invasive Species Strike Team

North Root WPA - 2012 Survey Acres Infested & Treated

Reference image from 2009 Montana NAIP Imagery

Northeast Montana Wetland Management District - 5 of 7 Maps

Northeast Montana Wetland Management District

Rabenberg WPA

Benton Lake ISST

Accomplishments

Weed Species	Total Survey Acres[1]	Survey Acres Infested[2]	Acres Treated[3]
Baby's breath	290.14	3.50	3.50
Project Site Total	**290.14**	**3.50**	**3.50**

[1] Area covered during the course of weed management activities regardless of presence or absence of target weed species as measured by perimeter in GIS.
[2] Area occupied by weed species within the survey area that does not contain the space between individuals or populations (i.e. net infestation size) as measured by GPS feature for monitoring and treatment combined, but areas in common not additive.
[3] The area or subset of infested area that has received some form of treatment as measured by GPS feature.

Highlights

Schedule

Dates	Project Type	Target Species	Size of Crew	Project Notes
19 & 20-June-2011	EDRR	Baby's breath	3	Systematic survey and chemical/mechanical treatment of historic populations within the WPA

Coordination and Cooperation

- Coordinated with refuge biological technician, Damon Taylor, for treatment priorities and site logistics.

Prevention and Education

- Treated baby's breath within the entire WPA in an effort to prevent its spread to adjacent properties.
- Baby's breath typically blooms in late July and can be treated with chemical or mechanical treatments.
    - This plant has sparse foliage and a deep root system making chemical control more difficult. Appropriate timing, chemical makeup and concentration of the application are all important factors when using this method.
    - Manual removal of the plant prior to seeding can be highly effective for control. Because of the deep roots, one must sever the root below the crown (6-10 inches below the soil) to kill the plant.
- Work was slowed after noticing birds flushing from tall grass to minimize disturbance.

Early Detection and Rapid Response

- This project was initiated as early detection and rapid response in 2006, when populations of baby's breath were first inventoried and then treated in 2008. Systematically surveying the entire management area each year (as opposed to going point-to-point) has allowed the ISST to detect new populations when they are most susceptible to management (EDRR). In addition, having

consistent survey areas allows the ISST to track populations over time to determine effectiveness and inform adaptive management strategies.

Inventory and Monitoring

- ISST searched 290.14 acres (296.72 acres in 2011) within Rabenberg WPA with an emphasis on historical baby's breath infestations and areas that had been surveyed in the past.
  - Since 2009 most baby's breath has been found along roadsides
  - A tremendous amount of 2009 and 2010 historically infested area within the interior of the WPA no longer had any baby's breath.
  - Baby's breath appeared to not occur in areas with thick tall grass which occurred frequently within the interior of the WPA.
  - Most infestations were found in the following disturbed locations. Infestations within the locations listed below have grown in size since previous treatments.
    1. All roadsides, but mainly the one bordering the WPA in the west.
    2. Disturbed area around a gravel pit in the northwest corner of the WPA.
    3. Disturbed site in the northeast corner of the WPA near an oil and gas structure.
- Canada thistle was the only other noxious weed noticed by crew members but was not targeted for treatment.

Management

- ISST treated 3.50 acres of baby's breath.
  - ISST members began working at Rabenberg WPA late in the day on June 19th. Chemical treatments were started briefly until it began raining. ISST dug up infestations with a shovel for the remainder of the day.
  - Chemical treatments were briefly interrupted by rain on June 20th and some infestations also had to be dug up while raining and waiting for plants to dry.
  - The two rain events may have affected effectiveness of chemical in some areas.
  - Treatments were shifted to late June in 2012 compared to September in 2011. Plants were actively growing in June whereas in 2011 most plants had already senesced by the time treatments were made.
  - 3.50 acres is most likely an accurate reflection of the current amount of infested acreage within the survey area compared to 2011 numbers (0.17 acres).
  - Over a similar survey area in 2009 ISST treated 1.77 acres and in 2010 treated 1.76 acres. 2012 treatments compared to 2009 treatments shows an overall increase of 98%. This is due to the fact that infestations within the roadsides and disturbed sites have grown since 2009.

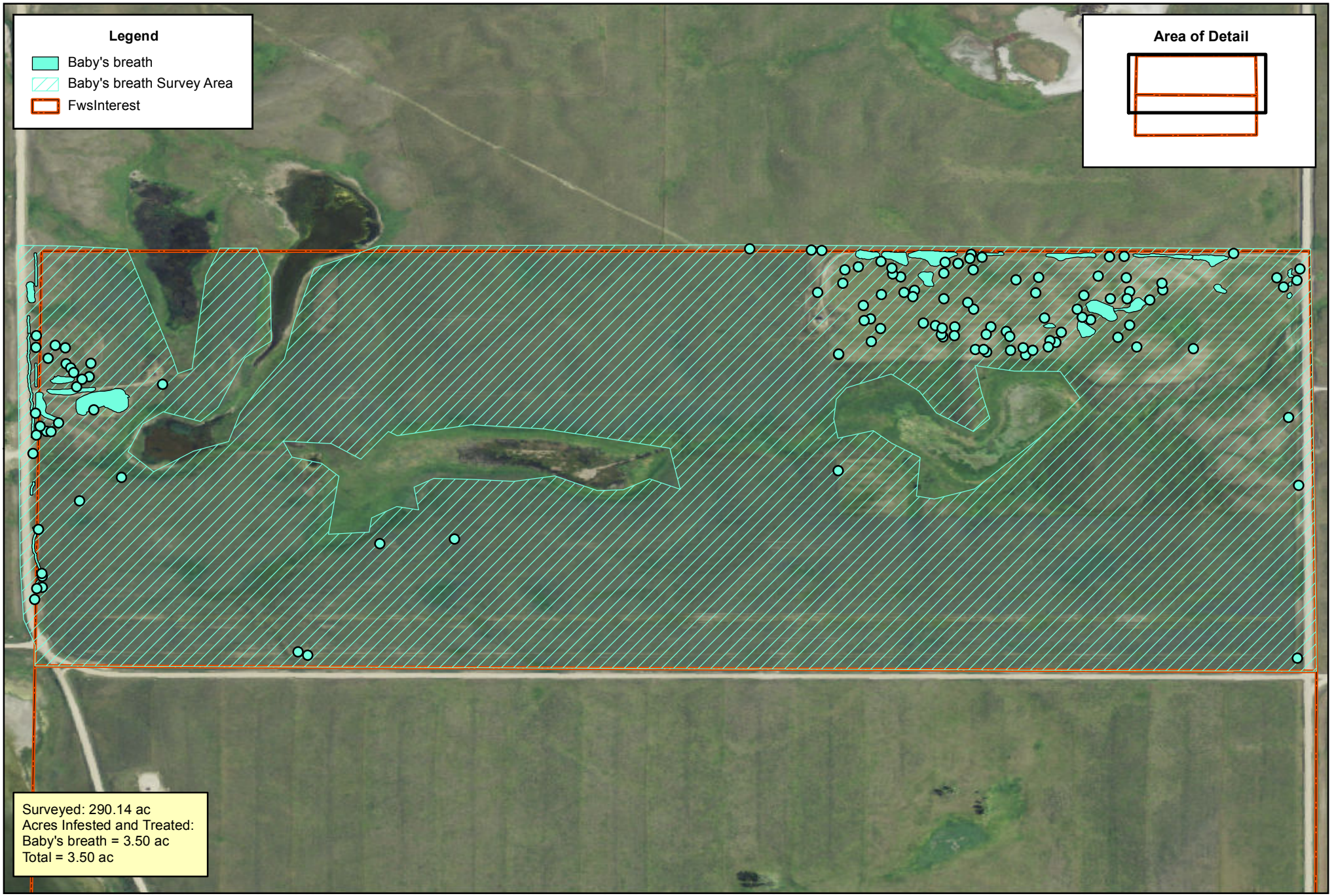
Eric Lassance spraying baby's breath at Rabenberg WPA. Photo by Eric Lassance.

Baby's breath at Rabenberg WPA. Photo by Eric Lassance.

U.S. Fish & Wildlife Service

MOYOCO Invasive Species Strike Team

Rabenberg WPA - 2012 Survey Acres Infested & Treated



Reference image from 2009 Montana NAIP Imagery

Northeast Montana Wetland Management District - 6 of 7 Maps

Northeast Montana Wetland Management District

State Line WPA

Benton Lake ISST

Accomplishments

Weed Species	Total Survey Acres[1]	Survey Acres Infested[2]	Acres Treated[3]
Baby's breath	64.72	0.68	0.68
Project Site Total	**64.72**	**0.68**	**0.68**

[1] Area covered during the course of weed management activities regardless of presence or absence of target weed species as measured by perimeter in GIS.
[2] Area occupied by weed species within the survey area that does not contain the space between individuals or populations (i.e. net infestation size) as measured by GPS feature for monitoring and treatment combined, but areas in common not additive.
[3] The area or subset of infested area that has received some form of treatment as measured by GPS feature.

Highlights

Schedule

Dates	Project Type	Target Species	Size of Crew	Project Notes
19-June-2012	EDRR	Baby's breath	1	Point to point chemical/mechanical treatment and survey of historic populations within the WPA

Coordination and Cooperation

- Coordinated with refuge biological technical, Damon Taylor, for treatment priorities and site logistics.

Prevention and Education

- Treated baby's breath along access roads and previously known locations in an effort to prevent its spread to adjacent properties.
- Baby's breath typically blooms in late July and can be treated with chemical or mechanical treatments.
    - This plant has sparse foliage and a deep root system making chemical control more difficult. Appropriate timing, chemical makeup and concentration of the application are all important factors when using this method.
    - Manual removal of the plant prior to seeding can be highly effective for control. Because of the deep roots, one must sever the root below the crown (6-10 inches below the soil) to kill the plant.

Early Detection and Rapid Response

- This project was initiated as early detection and rapid response in 2006, when populations of baby's breath were inventoried along the southeastern access road and then treated in 2008.Some progress has been made yet the refuge should consider full surveys in 2013 or 2014 since this year was only point-to-point and there hasn't been a recent comprehensive survey. Systematically

surveying the entire management area (as opposed to going point-to-point) allows the ISST to detect new populations when they are most susceptible to management (EDRR). In addition, having consistent survey areas allows the ISST to track populations over time to determine effectiveness and inform adaptive management strategies.

Inventory and Monitoring

- ISST searched 64.72 acres (74.80 acres in 2011) within State Line WPA with an emphasis on historical baby's breath infestations and areas that had been surveyed in the past.
  - Plants found were mostly in the same areas baby's breath was found since 2009 (along roadsides).
  - A tremendous amount of area infested in 2009 near the road no longer had any baby's breath.
- The only weed species noted by crew members, but not targeted was Canada thistle.

Management

- ISST treated 0.68 acres of baby's breath.
  - Treated Infestations were primarily along the access roads within the WPA.
  - ISST chemical treatments were interrupted twice by rain events.
  - The rain event may have affected effectiveness of chemical.
  - ISST dug up infestations with a shovel while raining and waiting for plants to dry to resume spraying.
  - Treatments were shifted to late June in 2012 compared to September in 2011. Plants were actively growing in June whereas in 2011 most plants had already senesced by the time treatments were made.
  - 0.68 acres is most likely an accurate reflection of the current amount of infested acreage within the survey area compared to 2011 numbers (0.03 acres).
  - Over a similar survey area, ISST treated 1.77 acres in 2009 and 0.73 acres in 2010 suggesting treatment was effective.

Baby's breath along a road at State Line WPA. Photo by Eric Lassance.

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Phone 406-444-3730

DAILY PESTICIDE APPLICATION RECORD

BUSINESS U.S. Fish and Wildlife Service	LICENSE# 103749-15
NAME Benton Lake NWR Invasive Species Strike Team	ADDRESS (Refuge or WPA) Stateline WPA
CITY, STATE, ZIP Great Falls, MT 59404	PHONE 406-727-7400 Ext. 213

	APPLICATION #1	APPLICATION #2
Applicator/Operator Name (s)	Eric Lassance	Eric Lassance
Date	06/19/12	06/19/12
County	Sheridan	Sheridan
Time Start/Stop	0700-0930 1100-1430	0930-1100
Temperature	55°F	55°F
Relative Humidity	60%	60%
Wind Speed/Direction (from)	2 mph/east	2 mph/east
Pesticide Manufacturer	Dupont	
Trade Name	Escort XP	
EPA Reg # or Formulation	352-439	
Rate: Product/Diluent Per Acre	1 oz/acre	
Amount of Chemical Applied	.11 oz	
Equipment Used (atv,backpack,truck,saw)	ATV #8 handgun (80 GPA)	shovel
Bio-Control (genus species)		
# released / acre		
Mechanical (mow,hand-pull)		Handpull, dig
Plant Phenology & Stage	Leaf-on, pre-flower	Leaf-on, pre-flower
Dominant Pest(s)	Baby's breath	Baby's breath
Equipment Used		
Acres/Area Treated or # of plants	Spot treatment, gps mapped	Spot treatment, gps mapped
GPS Filename		

Location #1 (Site specific description)
-Treated Baby's breath in historical areas which in cluded roadsides and SE historical population
-Completed historical treated areas

Location #2 (Site specific description)

-Dug up baby's breath along road in and around historical populations during rain and while I waited for it to dry out

COMMENTS/MAP: (any surfactant or dye used, PUP number, concerns with weather prior or post treatment, DETAILS, etc….)
-Rain from 930-1100. May have affect effectiveness of sprayed areas
-Also rained later in the afternoon after I left

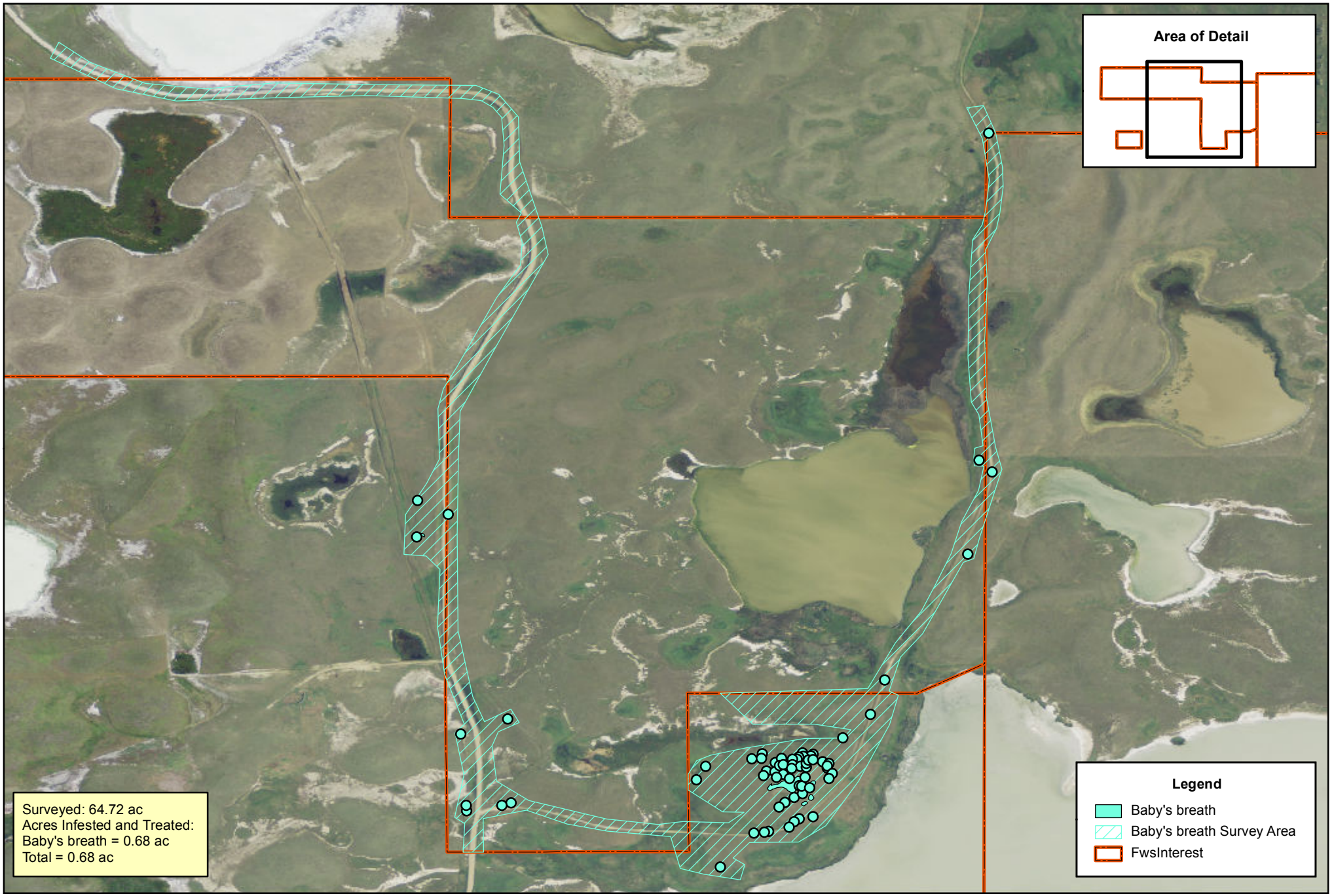
Shield IVM @ 2 oz / 10 gal
Syl Tak @ 1.28 oz / 10 gal

	Start	End	Total
EL #8	10 gal	1 gal	9 gal

U.S. Fish & Wildlife Service

MOYOCO Invasive Species Strike Team

State Line WPA - 2012 Survey Acres Infested & Treated



0 0.15 0.3 0.6 Miles

Reference image from 2009 Montana NAIP Imagery

Northeast Montana Wetland Management District - 7 of 7 Maps