

1. Annual Report

a. Executive Summary

The Durham Mosquito Abatement District (hereafter, the District) is an independent special district accountable to the citizens of Durham, CA and the surrounding area; charged with the protection of public health through the control of mosquitoes and mosquito-vectored diseases within its boundaries (see attached Durham MAD Boundary Map). The District is in compliance with applicable sections of the General NPDES Permit for Biological and Residual Pesticide Discharges from Vector Control Applications. Monitoring requirements were met by being a member of the MVCAC NPDES Permit Coalition, which conducted all required chemical, physical, and visual monitoring. The results of the Coalition's monitoring will be included in the Coalition Annual Report that will be sent separately to the SWRCB and Regional Boards.

The District did not apply any larvicide to a Water of the U.S. in 2012. The District completed 92 reportable adulticide applications within ¼ mile of a water of the U.S. during 2012. Adulticides are never applied directly to water. These applications are included because they may result in deposition of pesticide into a water of the U.S. and are required to be reported per conditions of the Statewide National Pollutant Discharge Elimination System (NPDES) Permit for Biological and Aquatic Residual Pesticide Discharges to Waters of the United States from Vector Control Applications. Hereafter these will be called permitted applications. Throughout 2012, The District followed the guidelines of its Pesticide Application Plan (PAP) and complied with all instructions on pesticide labels.

In accordance with SWRCB notification on July 13, 2012, the District did not conduct independent visual monitoring. On that date, SWRCB notified the permit holders in a letter to MVCAC that because the visual monitoring requirements were "interfering with the need for maximal efficient application to adequately protect human health from vector-borne diseases like West Nile Virus," that the visual monitoring was not required by individual Districts. While the District did not conduct formal visual monitoring, staff did not note any significant impacts to water quality after permitted applications.

The PAP prepared by the District was a continuation of the integrated management approach that has been used at the District for many years. Pesticide applications vary annually. The number and extent of permitted applications completed by the District during 2012 was similar to the 2011 season. Generally, pesticide use by the District has been minimized through implementation of various Best Management Practices for many years. NPDES permitting

requirements are not expected to alter management strategy or reduce pesticide use.

b. Summary of Monitoring Data

For the reasons stated above the District will not be reporting individual visual monitoring data. Physical and chemical monitoring was conducted as part of the MVCAC Monitoring Coalition. All measurements made by District staff or by URS, the organization hired by MVCAC to coordinate and report physical and chemical monitoring, is contained within the MVCAC NPDES Monitoring Report (previously submitted by the MVCAC Monitoring Coalition). The District also took part in the Granite Canyon Laboratory Pilot Toxicity Study, and information on those samples may be found in their Report (previously submitted by the MVCAC Monitoring Coalition).

The Coalition will provide information on the incidence of West Nile Virus and other similar public health threats in the Coalition's annual report.

c. Identification of Current BMPs

BMP's utilized by the District are outlined in the District's PAP. These include; emphasis on reducing mosquito breeding habitat through non-chemical means, using biological control organisms where appropriate, training employees to prevent spills and applying appropriate amount of chemical in each treatment area, calibrating application equipment.

d. Violation Discussion

This report completes requirements for the NPDES permit for 2012. While requirements for the permit have been met without violation, this report was not submitted by March 1 as required in the permit.

e. Map of Applications

See Attachment C: Durham MAD Waters of the US. The map shows all waters of the U.S. included within District boundaries.

f. Log of Applications made to Waters of the U.S.

See Pesticide Application Log (Attachment D).

g. General Information on Applications.

Only applications directly to a water of the United States, or applications that could reasonably be expected to result in deposition of pesticide into a water of the U.S. are included in this report.

Very few locations the District treats with larvicides are waters of the U.S. None of the larvicide applications completed during 2012 were permitted applications.

The District records ULV applications by road name and in some cases segment of road (as defined by the District). Because weather and environmental

conditions between and during ULV applications are variable, the District has not attempted to determine the exact deposition pattern of adulticide during each application. Every ULV application of an adulticide within ¼ mile of a water of the U.S. during 2012 has been included in this report and is considered by the District to be a permitted application for reporting purposes. Not every ULV adulticide application made by the District is included in this report. Further, this report does not include the total number of miles driven during ULV applications, rather it reflects those portions of the applications considered permitted applications as previously described.

The determination to apply an adulticide is based primarily on the adult mosquito population in an area, with the potential for transmission of West Nile virus or other mosquito vectored disease also a contributing factor. As a standard Best Management Practice, District policy is to adulticide only in areas with large populations of adult mosquitoes or at elevated risk of mosquito vectored disease transmission. Institutional knowledge within the District about mosquito population dynamics, species seasonality, and movement patterns, along with surveillance data and mosquito annoyance reports are used to determine application areas. During 2012, ULV applications were completed by either District Manager, Aaron Amator or by an experienced technician, Ken Revsser.

The District calibrated each ULV sprayer to the same application rate. The rate used by the District is near the center of the application rates listed on the product label for ULV mosquito control.

Pesticide used for ULV adulticide applications:

Evolver 4-4 ULV US EPA registration number for the product is 769-982.

Calibrated flow rate and driving speed for ULV sprayers is:

7.0 fluid oz / minute at 10 MPH driving speed.

Application rate is 0.00263 Lbs permethrin / acre.

The District does not own a weather station, and weather conditions frequently vary during any given spray event. Therefore, weather conditions have not been recorded, however weather conditions are checked locally prior to every application and during a spray event if conditions change significantly. ULV applications are done only if weather conditions are within guidelines established in District policy, and in compliance with pesticide label requirements.

Weather conditions during ULV applications:

No precipitation falling or predicted during the next 2 hours

Air temperature below 90 degrees Fahrenheit

Wind speed < 10 miles per hour

Applications may only be done from sunset and sunrise

h. Visual Monitoring Data

See MVCAC Monitoring Coalition report.

i. Monitoring Program, BMPs and PAP Recommendations

The District is examining Coalition monitoring results for exceedance of receiving water standards. In the event receiving water standards have not been met, the District will compare product used and application rates that resulted in the exceedance with those used by the District. The District will alter product choice and/ or reduce application rates as necessary to ensure receiving water standards are met within District boundaries.

j. Pesticide Application Log

See Attachment D.

2. Updated Monitoring Locations

The District is part of the MVCAC Coalition. Any changes to monitoring locations will be stipulated in the Coalition report.

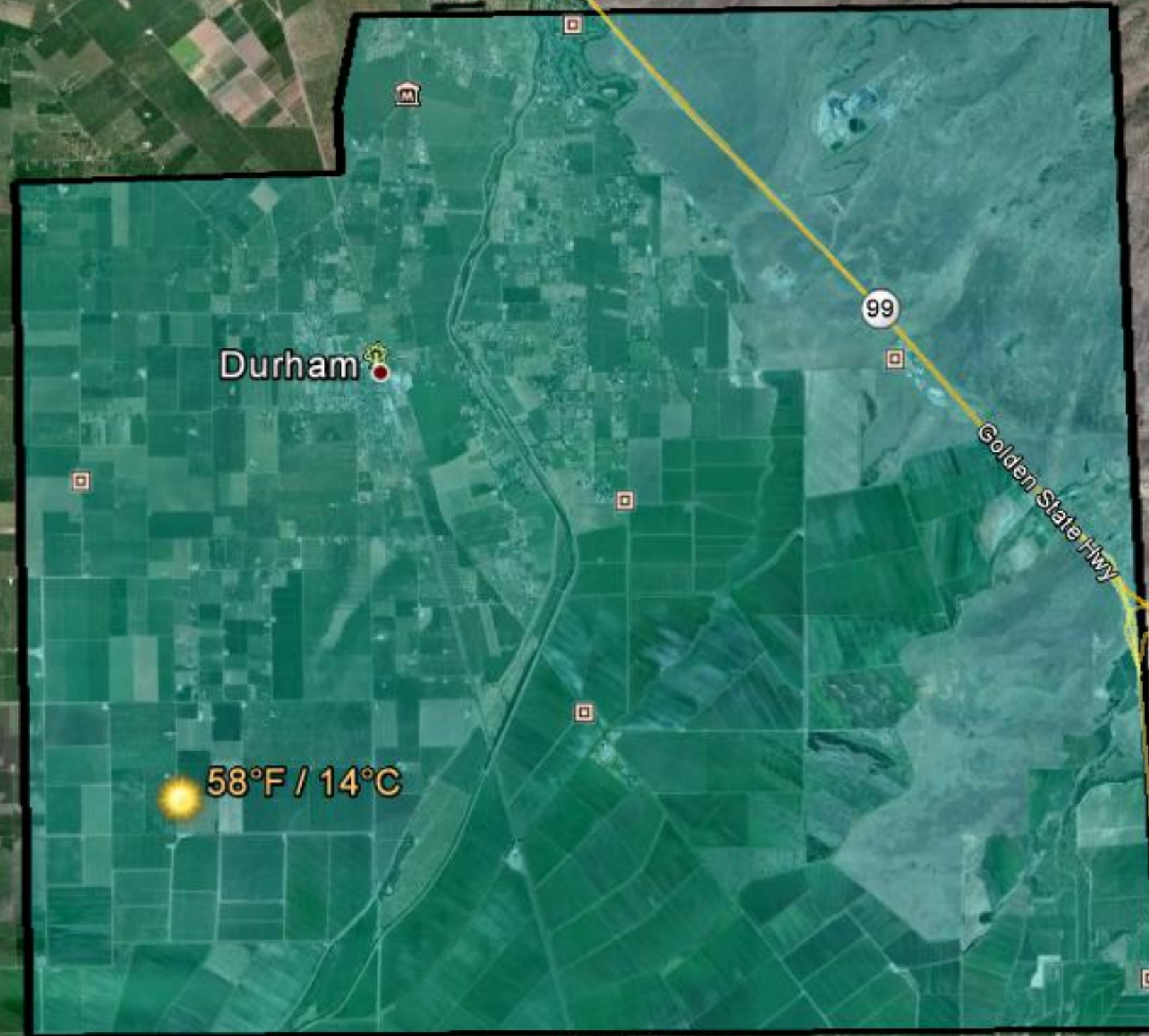
3. Self-Monitoring Reports

The District was not asked to submit any self-monitoring reports by the State Water Board or by the Central Valley Regional Water Quality Control Board.

4. Monitoring Reports

The District is a member of the Mosquito and Vector Control Association of California's Monitoring and Reporting Coalition. The Coalition Monitoring Annual Report will summarize all physical measurements and chemical monitoring done for 2011 and 2012.

Durham MAD Boundary Map



Durham

58°F / 14°C

99

Golden State Hwy

149

191

70

3.15 mi

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Google earth

Imagery Date: 6/26/2011 39°37'45.44" N 121°45'44.49" W elev 150 ft eye alt 13.63 mi

Attachment C: Durham MAD Waters of the US



3.15 mi

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Google earth

Imagery Date: 6/26/2011 39°37'45.44" N 121°45'44.49" W elev 150 ft eye alt 13.63 mi

Agency: Durh

Date of Application	Applicator
22-May-12	Ken Revsser
29-May-13	Ken Revsser
30-May-12	Ken Revsser
31-May-12	Ken Revsser
1-June, 2012	Ken Revsser
14-Jun-12	Ken Revsser
19-Jun-12	Ken Revsser
26-Jun-12	Ken Revsser
27-Jun-12	Ken Revsser
28-Jun-12	Ken Revsser
3-Jul-12	Ken Revsser
5-Jul-12	Ken Revsser
6-Jul-12	Ken Revsser
10-Jul-12	Ken Revsser
13-Jul-12	Ken Revsser
17-Jul-12	Ken Revsser
18-Jul-12	Ken Revsser
19-Jul-12	Ken Revsser
20-Jul-12	Ken Revsser
26-Jul-12	Ken Revsser
27-Jul-13	Ken Revsser
1-Aug-12	Ken Revsser
4-Aug-12	Ken Revsser
7-Aug-12	Ken Revsser
8-Aug-12	Ken Revsser
11-Aug-12	Ken Revsser
16-Aug-12	Ken Revsser
17-Aug-12	Ken Revsser
21-Aug-12	Ken Revsser
22-Aug-12	Ken Revsser
23-Aug-12	Ken Revsser
24-Aug-12	Ken Revsser
28-Aug-12	Ken Revsser

29-Aug-12	Ken Revsser
30-Aug-12	Ken Revsser
31-Aug-12	Ken Revsser
4-Sep-12	Ken Revsser
5-Sep-12	Ken Revsser
6-Sep-12	Ken Revsser
7-Sep-12	Ken Revsser
11-Sep-12	Ken Revsser
12-Sep-12	Ken Revsser
13-Sep-12	Ken Revsser
14-Sep-12	Ken Revsser
18-Sep-12	Ken Revsser
19-Sep-13	Ken Revsser
20-Sep-12	Ken Revsser
21-Sep-12	Ken Revsser
25-Sep-12	Ken Revsser
27-Sep-12	Ken Revsser
28-Sep-12	Ken Revsser
2-Oct-12	Ken Revsser
3-Oct-12	Ken Revsser
4-Oct-12	Ken Revsser
5-Oct-12	Ken Revsser
9-Oct-12	Ken Revsser
10-Oct-12	Ken Revsser
11-Oct-12	Ken Revsser
11-Oct-12	Ken Revsser
16-Oct-12	Ken Revsser
28-Oct-12	Ken Revsser
2-Nov-12	Ken Revsser
6-Nov-12	Ken Revsser
7-Nov-12	Aaron Amator
30-May-12	Ken Revsser
27-Jun-12	Ken Revsser
18-Jul-13	Ken Revsser
8-Aug-12	Ken Revsser
22-Aug-12	Ken Revsser
29-Aug-12	Ken Revsser
5-Sep-12	Ken Revsser

19-Sep-12	Ken Revsser
26-Sep-12	Ken Revsser
3-Oct-12	Ken Revsser
10-Oct-12	Ken Revsser
16-Oct-12	Ken Revsser
2-Nov-12	Ken Revsser
6-Nov-12	Ken Revsser

14-Jun-12	Ken Revsser
5-Jul-12	Ken Revsser
19-Jul-12	Ken Revsser
26-Jul-12	Ken Revsser
23-Aug-13	Ken Revsser
30-Aug-12	Ken Revsser
6-Sep-12	Ken Revsser
13-Sep-12	Ken Revsser
20-Sep-12	Ken Revsser
27-Sep-12	Ken Revsser
4-Oct-12	Ken Revsser
11-Oct-12	Ken Revsser
28-Oct-12	Ken Revsser
7-Nov-12	Aaron Amator

Mam Mosquito Abatement District

Streets/ Location	ULV Miles	Flow Rate (Oz. / mile)
Estates, Oroville-Chico Hwy	1.4	42
Cummings, Lott, Durham-Dayton, Esquan (crossroads)	2.8	42
Lott, Garden (crossroads)	0.9	42
Oroville-Chico Hwy, Durham-Daton	1.1	42
Stanford (crossroads)	1.1	42
Stanford, Oroville-Chico Hwy (crossroads)	1.6	42
Cummings, Lott, Esquan (crossroads)	2.1	42
Cummings, Lott, Esquan (crossroads)	2.1	42
Lott, Garden (crossroads)	0.9	42
Oroville-Chico Hwy, Estates (crossroads)	1.4	42
Stanford (crossroads)	1.1	42
Oroville-Chico Hwy, Estates (crossroads)	1.4	42
Stanford (crossroads)	1.1	42
Cummings, Lott, Esquan (crossroads)	2.1	42
Durham-Dayton, Stanford Ln. (crossroads)	1.8	42
Cummings, Lott, Esquan (crossroads)	2.1	42
Stanford, Lott, Garden, Esquan (crossroads)	2.2	42
Oroville-Chico Hwy, Estates	1.3	42
Stanford (crossroads)	1.1	42
Oroville - Chico Hwy	0.5	42
Stanford (crossroads)	1.1	42
Durham-Dayton Hwy, Cummings, Lott, Esquan (crossroads)	2.7	42
Stanford , Durham-Dayton	1.8	42
Cummings, Lott, Esquan (crossroads)	2.1	42
Lott, Garden, Esquan (crossroads)	1.1	42
Garden Rd., Stanford (crossroads)	1.3	42
Cummings Ln.	0.5	42
Lott, Esquan (crossroads)	0.9	42
Cummings, Laura, Fredrick, Esquan	1.9	42
Lott, Garden, Durham-Dayton	1.5	42
Oroville-Chico Hwy., Durham-Dayton, Estates	2.1	42
Frederick, Stanford (crossroads)	1.3	42
Cummings, Lott, Esquan (crossroads)	2.1	42

Lott, Garden, Esquan (crossroads)	1.1	42
Estates, Oroville-Chico Hwy	1.4	42
Stanford Ln (crossroads)	1.1	42
Cummings, Lott, Esquan, Durham-Dayton	2.7	42
Lott, Esquan (crossroads)	0.9	42
Estates Dr., Oroville - Chico Hwy	1.3	42
Stanford, Durham-Dayton	1.5	42
Cummings, Lott, Esquan (crossroads)	2.1	42
Garden, Durham - Dayton Hwy	0.9	42
Oroville - Chico Highway, Estates	1.4	42
Stanford	0.8	42
Cummings, Lott, Durham-Dayton, Esquan	1.6	42
Estates, Garden, Esquan	0.7	42
Estates, Oroville-Chico Hwy	1.4	42
Stanford Ln. (crossroads)	1.1	42
Cummings, Lott, Esquan (crossroads)	2.1	42
Estates Dr., Oroville - Chico Hwy	1.3	42
Durham-Dayton, Stanford Ln. (crossroads)	1.8	42
Cummings, Lott, Vista, Durham-Dayton	3.1	42
Garden, Lott, Esquan (crossroads)	1.1	42
Estates, Fairway, Oroville-Chico Hwy	1.5	42
Stanford, Sycamore	1.2	42
Cummings, Lott, Esquan (crossroads)	2.1	42
Lott, Esquan (crossroads)	0.9	42
Stanford, Durham-Dayton Hwy	1.5	42
Estates, Fairway, Oroville-Chico Hwy	1.4	42
Cummings, Esquan	0.6	42
Stanford, Fairway, Estates, crossroads	2.4	42
Durham-Dayton Hwy, Lott, Esquan (crossroads)	1.5	42
Cummings, Lott, Esquan (crossroads)	2.1	42
Oroville - Chico Hwy.	0.5	42
Mesa Rd	0.2	42
Upper Esquan	0.6	42
Mesa Rd	0.2	42
Upper Esquan, Mesa Rd	0.8	42
Upper Esquan, Mesa Rd	0.8	42
Upper Esquan, Mesa Rd	0.8	42
Upper Esquan, Mesa Rd	0.8	42

Upper Esquan, Mesa Rd	0.8	42
Upper Esquan, Mesa Rd	0.8	42
Upper Esquan, Mesa Rd	0.8	42
Upper Esquan, Mesa Rd	0.8	42
Upper Esquan	0.6	42
Upper Esquan, Mesa Rd	0.8	42
Upper Esquan	0.6	42
Cycle Land	0.4	42
Cycle Land	0.4	42
Cycle Land	0.4	42
Cycle Land, Oroville-Chico Hwy	0.8	42
Cycle Land, Oroville-Chico Hwy	0.8	42
Cycle Land, Oroville-Chico Hwy	0.8	42
Cycle Land, Oroville-Chico Hwy	0.8	42
Cycle Land, Oroville-Chico Hwy	0.8	42
Cycle Land, Oroville-Chico Hwy	0.8	42
Cycle Land, Oroville-Chico Hwy	0.8	42
Oroville-Chico Hwy	0.4	42
Oroville-Chico Hwy	0.4	42
Cycle Land, Oroville-Chico Hwy	0.8	42
Oroville-Chico Hwy	0.4	42

Application Information

Amount Product Applied (fl. Oz.)	Total Permethrin Applied (lb)	Total PBO Applied (lb)	Name of Water Body	Type of Water Body
58.8	0.13	0.13	Butte Creek	perennial creek
117.6	0.27	0.27	Butte Creek	perennial creek
37.8	0.09	0.09	Butte Creek	perennial creek
46.2	0.1	0.1	Butte Creek	perennial creek
46.2	0.1	0.1	Butte Creek	perennial creek
67.2	0.15	0.15	Butte Creek	perennial creek
88.2	0.2	0.2	Butte Creek	perennial creek
88.2	0.2	0.2	Butte Creek	perennial creek
37.8	0.09	0.09	Butte Creek	perennial creek
58.8	0.13	0.13	Butte Creek	perennial creek
46.2	0.1	0.1	Butte Creek	perennial creek
58.8	0.13	0.13	Butte Creek	perennial creek
46.2	0.1	0.1	Butte Creek	perennial creek
88.2	0.2	0.2	Butte Creek	perennial creek
75.6	0.17	0.17	Butte Creek	perennial creek
88.2	0.2	0.2	Butte Creek	perennial creek
92.4	0.21	0.21	Butte Creek	perennial creek
54.6	0.12	0.12	Butte Creek	perennial creek
46.2	0.1	0.1	Butte Creek	perennial creek
21	0.05	0.05	Butte Creek	perennial creek
46.2	0.1	0.1	Butte Creek	perennial creek
113.4	0.26	0.26	Butte Creek	perennial creek
75.6	0.17	0.17	Butte Creek	perennial creek
88.2	0.2	0.2	Butte Creek	perennial creek
46.2	0.1	0.1	Butte Creek	perennial creek
54.6	0.12	0.12	Butte Creek	perennial creek
21	0.05	0.05	Butte Creek	perennial creek
37.8	0.09	0.09	Butte Creek	perennial creek
79.8	0.18	0.18	Butte Creek	perennial creek
63	0.14	0.14	Butte Creek	perennial creek
88.2	0.2	0.2	Butte Creek	perennial creek
54.6	0.12	0.12	Butte Creek	perennial creek
88.2	0.2	0.2	Butte Creek	perennial creek

46.2	0.1	0.1	Butte Creek	perennial creek
58.8	0.13	0.13	Butte Creek	perennial creek
46.2	0.1	0.1	Butte Creek	perennial creek
113.4	0.26	0.26	Butte Creek	perennial creek
37.8	0.09	0.09	Butte Creek	perennial creek
54.6	0.12	0.12	Butte Creek	perennial creek
63	0.14	0.14	Butte Creek	perennial creek
88.2	0.2	0.2	Butte Creek	perennial creek
37.8	0.09	0.09	Butte Creek	perennial creek
58.8	0.13	0.13	Butte Creek	perennial creek
33.6	0.08	0.08	Butte Creek	perennial creek
67.2	0.15	0.15	Butte Creek	perennial creek
29.4	0.07	0.07	Butte Creek	perennial creek
58.8	0.13	0.13	Butte Creek	perennial creek
46.2	0.1	0.1	Butte Creek	perennial creek
88.2	0.2	0.2	Butte Creek	perennial creek
54.6	0.12	0.12	Butte Creek	perennial creek
75.6	0.17	0.17	Butte Creek	perennial creek
130.2	0.29	0.29	Butte Creek	perennial creek
46.2	0.1	0.1	Butte Creek	perennial creek
63	0.14	0.14	Butte Creek	perennial creek
50.4	0.11	0.11	Butte Creek	perennial creek
88.2	0.2	0.2	Butte Creek	perennial creek
37.8	0.09	0.09	Butte Creek	perennial creek
63	0.14	0.14	Butte Creek	perennial creek
58.8	0.13	0.13	Butte Creek	perennial creek
25.2	0.06	0.06	Butte Creek	perennial creek
100.8	0.23	0.23	Butte Creek	perennial creek
63	0.14	0.14	Butte Creek	perennial creek
88.2	0.2	0.2	Butte Creek	perennial creek
21	0.05	0.05	Butte Creek	perennial creek
8.4	0.02	0.02	North Fork Hardin Slough	Ephemeral Creek
25.2	0.06	0.06	North Fork Hardin Slough	Ephemeral Creek
8.4	0.02	0.02	North Fork Hardin Slough	Ephemeral Creek
33.6	0.08	0.08	North Fork Hardin Slough	Ephemeral Creek
33.6	0.08	0.08	North Fork Hardin Slough	Ephemeral Creek
33.6	0.08	0.08	North Fork Hardin Slough	Ephemeral Creek
33.6	0.08	0.08	North Fork Hardin Slough	Ephemeral Creek

33.6	0.08	0.08	North Fork Hardin Slough	Ephemeral Creek
33.6	0.08	0.08	North Fork Hardin Slough	Ephemeral Creek
33.6	0.08	0.08	North Fork Hardin Slough	Ephemeral Creek
33.6	0.08	0.08	North Fork Hardin Slough	Ephemeral Creek
25.2	0.06	0.06	North Fork Hardin Slough	Ephemeral Creek
33.6	0.08	0.08	North Fork Hardin Slough	Ephemeral Creek
25.2	0.06	0.06	North Fork Hardin Slough	Ephemeral Creek
16.8	0.04	0.04	North Fork Hardin Slough 2	Ephemeral Creek
16.8	0.04	0.04	North Fork Hardin Slough 2	Ephemeral Creek
16.8	0.04	0.04	North Fork Hardin Slough 2	Ephemeral Creek
33.6	0.08	0.08	North Fork Hardin Slough 2	Ephemeral Creek
33.6	0.08	0.08	North Fork Hardin Slough 2	Ephemeral Creek
33.6	0.08	0.08	North Fork Hardin Slough 2	Ephemeral Creek
33.6	0.08	0.08	North Fork Hardin Slough 2	Ephemeral Creek
33.6	0.08	0.08	North Fork Hardin Slough 2	Ephemeral Creek
33.6	0.08	0.08	North Fork Hardin Slough 2	Ephemeral Creek
33.6	0.08	0.08	North Fork Hardin Slough 2	Ephemeral Creek
16.8	0.04	0.04	North Fork Hardin Slough 2	Ephemeral Creek
16.8	0.04	0.04	North Fork Hardin Slough 2	Ephemeral Creek
33.6	0.08	0.08	North Fork Hardin Slough 2	Ephemeral Creek
16.8	0.04	0.04	North Fork Hardin Slough 2	Ephemeral Creek

