CLARK FORK COALITION

clarkfork.org

Partners in Clean Water

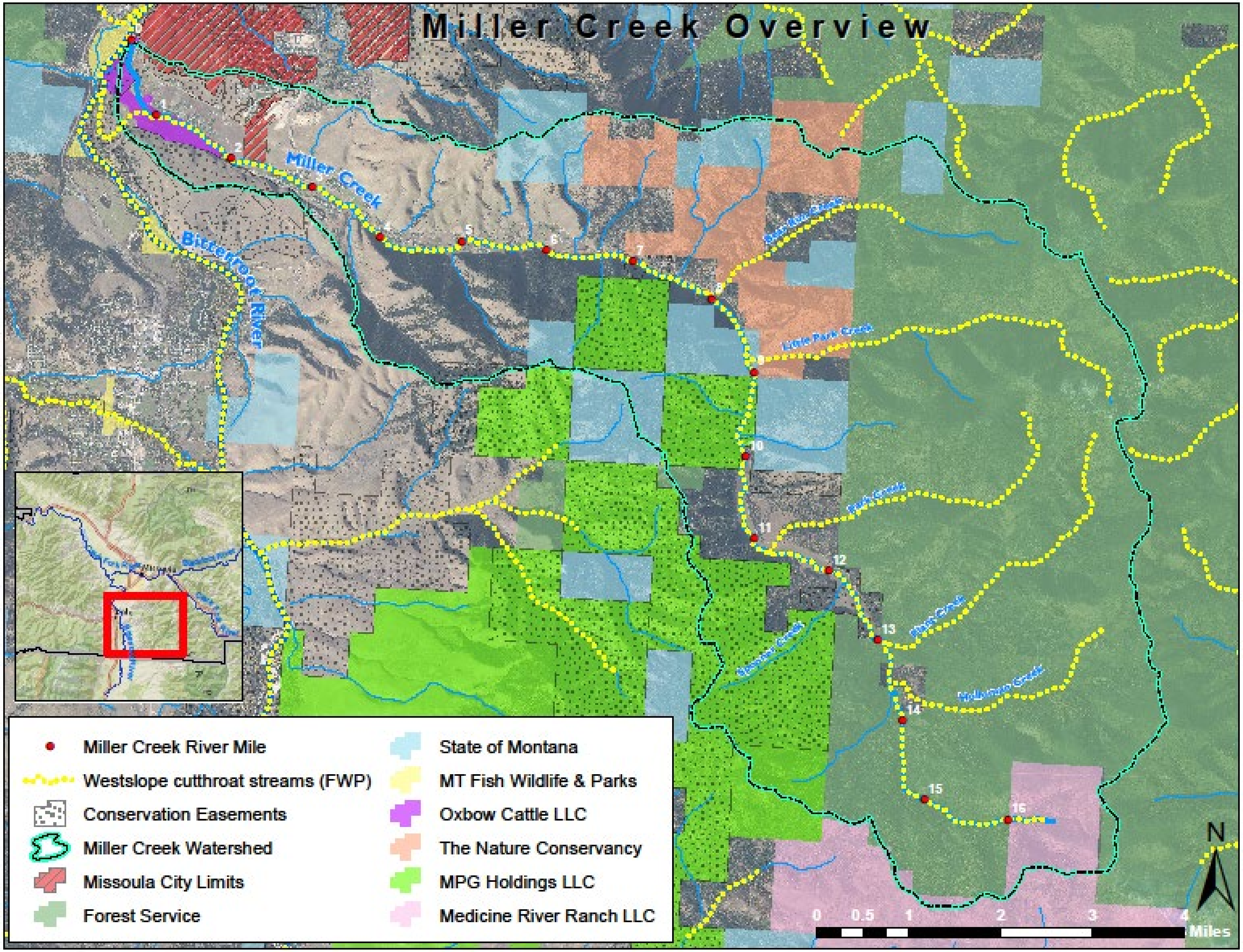

Miller Creek Overview
Miller Creek
Bitterroot River
Little Park Creek
Miller Creek River Mile
Westslope cutthroat streams (FWP)
Conservation Easements
Miller Creek Watershed
Missoula City Limits
Forest Service
State of Montana
MT Fish Wildlife & Parks
Oxbow Cattle LLC
The Nature Conservancy
MPG Holdings LLC
Medicine River Ranch LLC
N
0 0.5 1 2 3 4
Miles

Photo 1: Miller Creek Spooner Creek Ranch-active erosion April 17, 2019

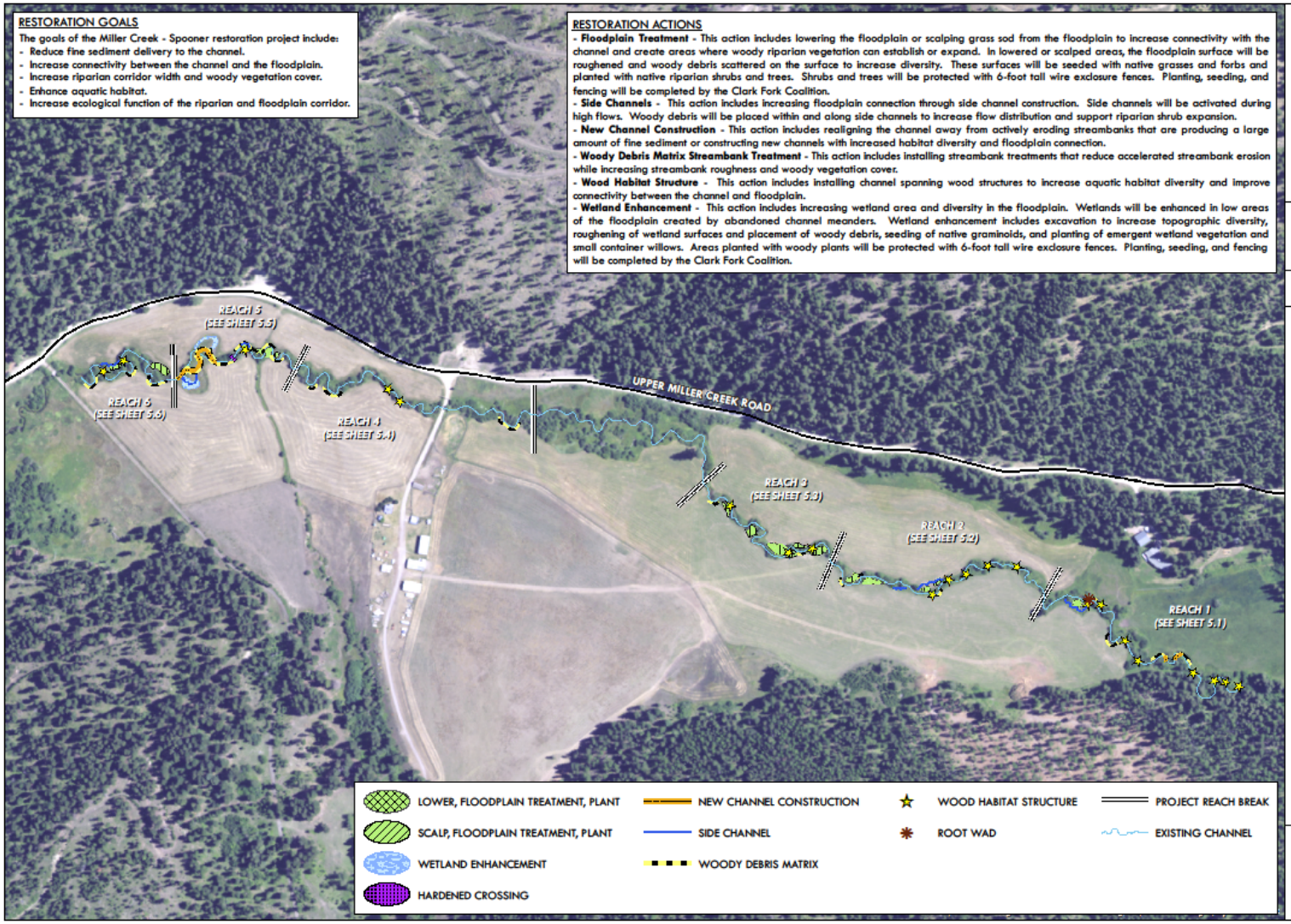
RESTORATION GOALS

The goals of the Miller Creek - Spooner restoration project include:

- Reduce fine sediment delivery to the channel.
- Increase connectivity between the channel and the floodplain.
- Increase riparian corridor width and woody vegetation cover.
- Enhance aquatic habitat.
- Increase ecological function of the riparian and floodplain corridor.

RESTORATION ACTIONS

- **Floodplain Treatment** - This action includes lowering the floodplain or scalping grass sod from the floodplain to increase connectivity with the channel and create areas where woody riparian vegetation can establish or expand. In lowered or scalped areas, the floodplain surface will be roughened and woody debris scattered on the surface to increase diversity. These surfaces will be seeded with native grasses and forbs and planted with native riparian shrubs and trees. Shrubs and trees will be protected with 6-foot tall wire exclosure fences. Planting, seeding, and fencing will be completed by the Clark Fork Coalition.
- **Side Channels** - This action includes increasing floodplain connection through side channel construction. Side channels will be activated during high flows. Woody debris will be placed within and along side channels to increase flow distribution and support riparian shrub expansion.
- **New Channel Construction** - This action includes realigning the channel away from actively eroding streambanks that are producing a large amount of fine sediment or constructing new channels with increased habitat diversity and floodplain connection.
- **Woody Debris Matrix Streambank Treatment** - This action includes installing streambank treatments that reduce accelerated streambank erosion while increasing streambank roughness and woody vegetation cover.
- **Wood Habitat Structure** - This action includes installing channel spanning wood structures to increase aquatic habitat diversity and improve connectivity between the channel and floodplain.
- **Wetland Enhancement** - This action includes increasing wetland area and diversity in the floodplain. Wetlands will be enhanced in low areas of the floodplain created by abandoned channel meanders. Wetland enhancement includes excavation to increase topographic diversity, roughening of wetland surfaces and placement of woody debris, seeding of native graminoids, and planting of emergent wetland vegetation and small container willows. Areas planted with woody plants will be protected with 6-foot tall wire exclosure fences. Planting, seeding, and fencing will be completed by the Clark Fork Coalition.



eum Environmental Consulting

DATUM: North American Datum 1983
PROJECTION: Montana State Plane
UNIT: U.S. Feet

DATA SOURCES:
USDA NAIP, 2015 (Imagery)

0 150 300 Feet

RESTORATION TREATMENT OVERVIEW

MILLER CREEK - SPOONER RESTORATION PROJECT
MISSOULA, MONTANA

SHEET
3.0

geum Environmental Consulting

DATUM: North American Datum 1983
PROJECTION: Montana State Plane
UNIT: U.S. Feet

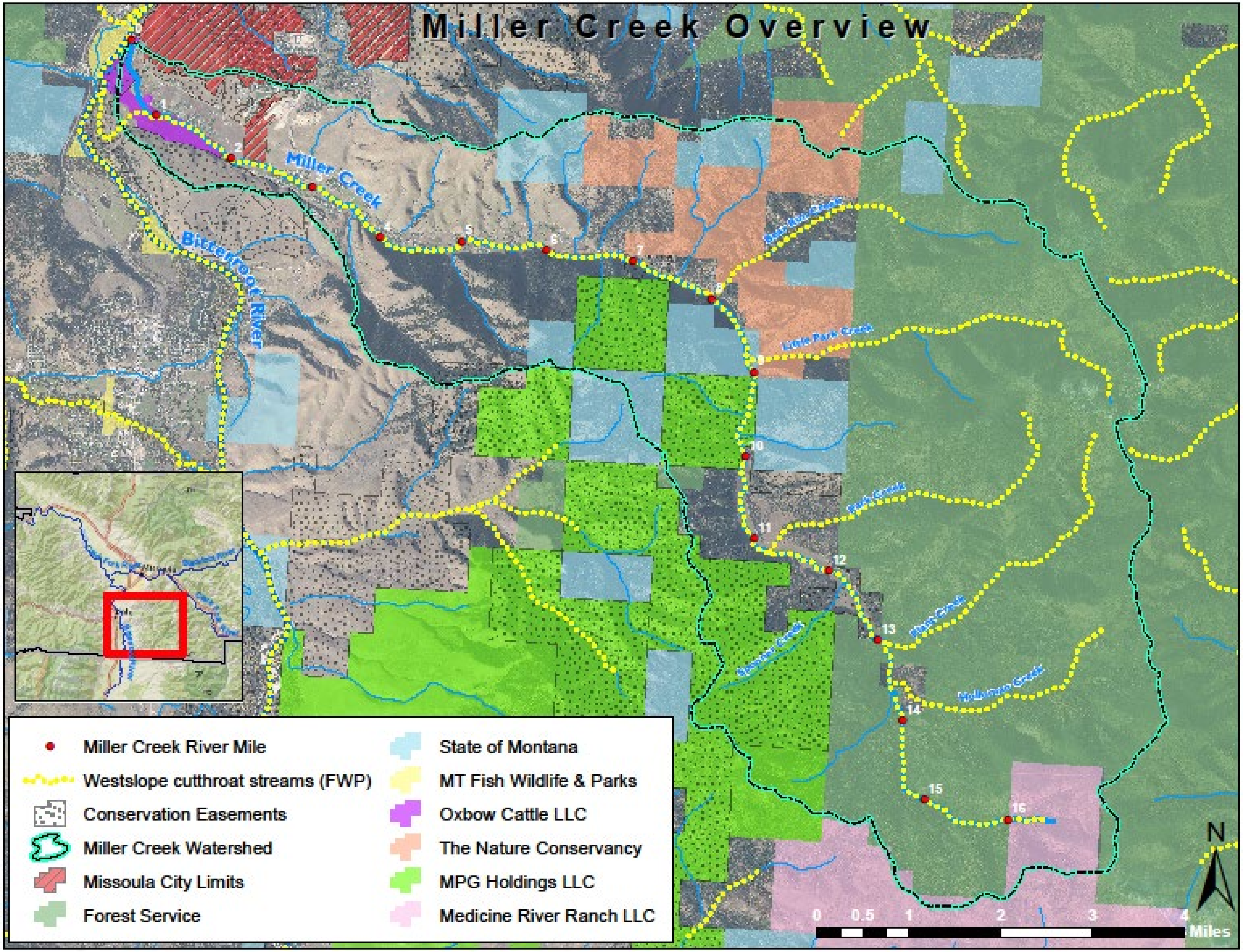
DATA SOURCES:
Geum Drone, 2019 (Imagery)

0 20 40 Feet

REACH 5
RESTORATION PLAN VIEW AND STRUCTURE LAYOUT

MILLER CREEK - SPOONER RESTORATION PROJECT
MISSOULA, MONTANA

SHEET
5.5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Miller Creek River Mile
Westslope cutthroat streams (FWP)
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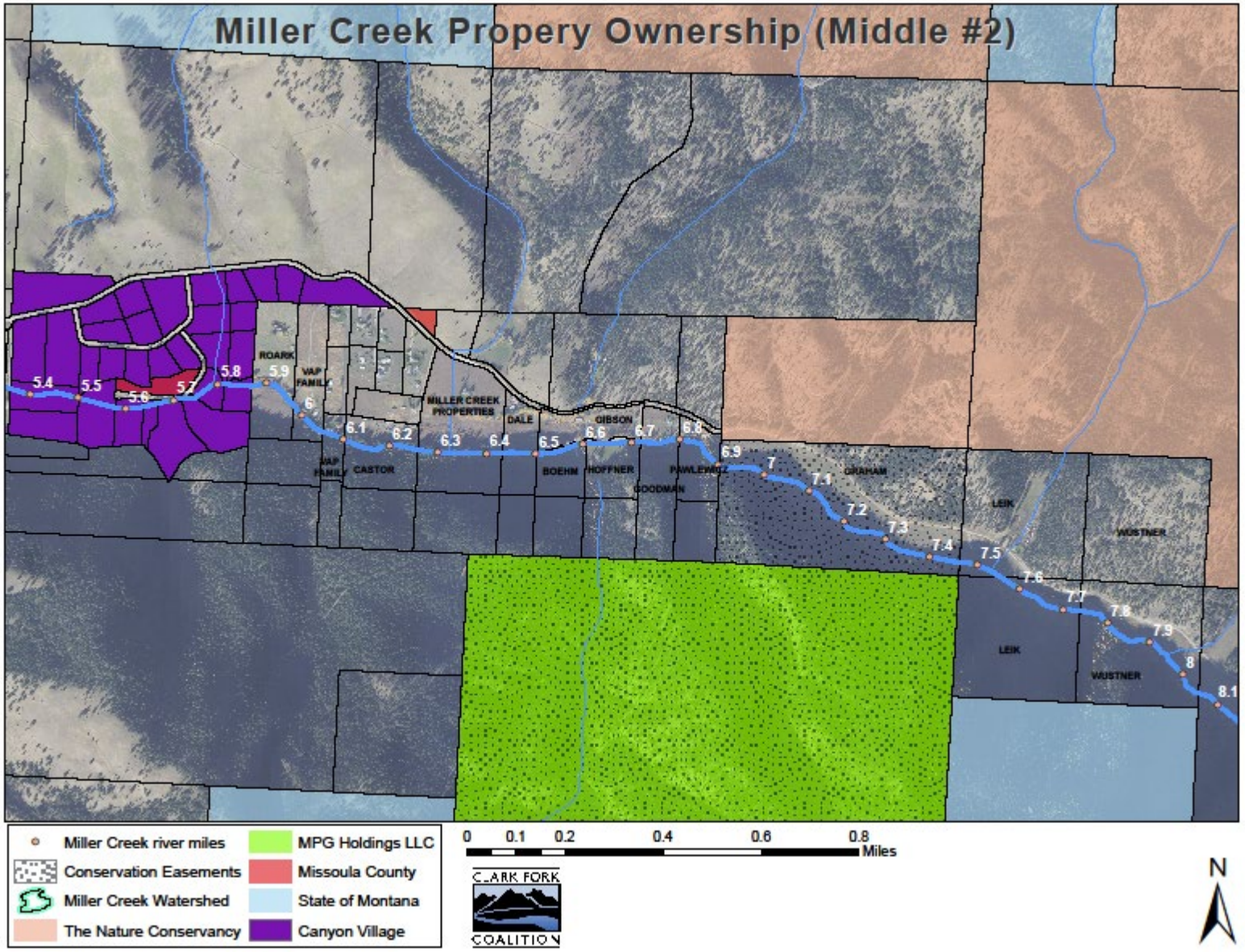
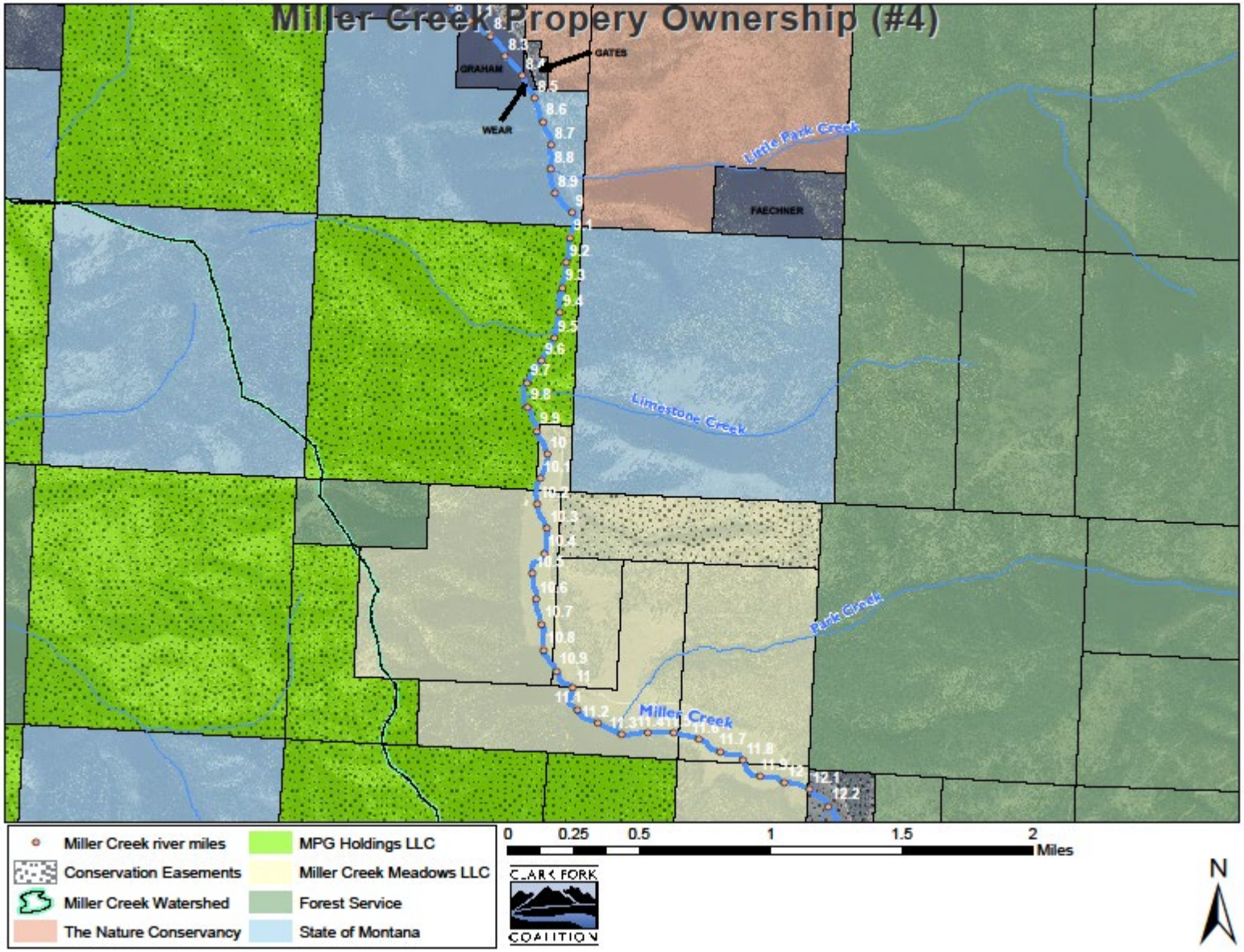
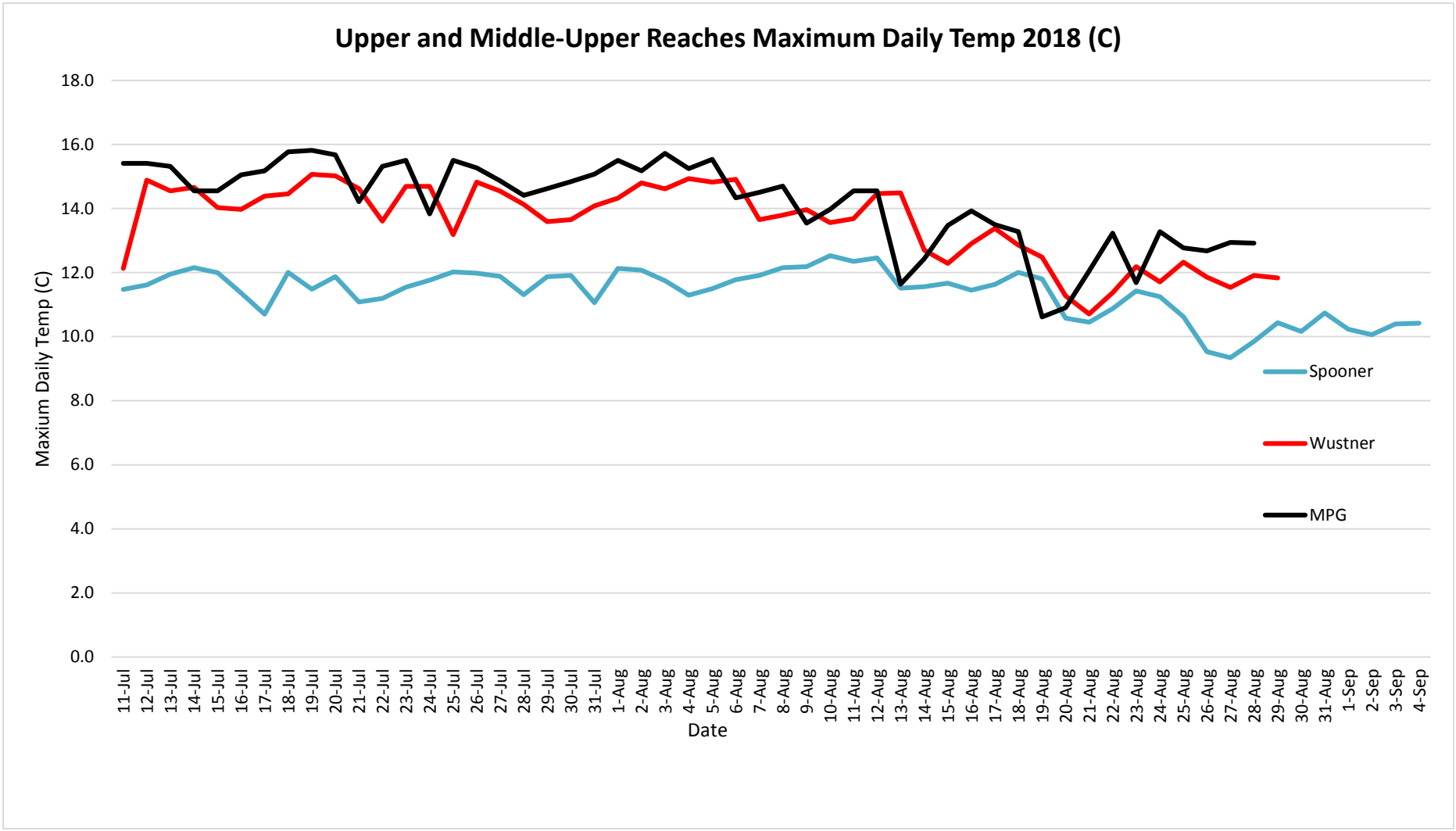
Miller Creek Watershed
Missoula City Limits
Forest Service
State of Montana
MT Fish Wildlife & Parks
Oxbow Cattle LLC
The Nature Conservancy
MPG Holdings LLC
Medicine River Ranch LLC
N
0 0.5 1 2 3 4
Miles


Miller Creek Propery Ownership (Middle #2)
ROARK
VAP FAMILY
MILLER CREEK PROPERTIES
DALE
GIBSON
VAP FAMILY
CASTOR
BOEHM
HOFFNER
PAWLEWICZ
GOODMAN
GRAHAM
LEIK
WUSTNER
LEIK
WUSTNER
5.4
5.5
5.6
5.7
5.8
5.9
6
6.1
6.2
6.3
6.4
6.5
6.6
6.7
6.8
6.9
7
7.1
7.2
7.3
7.4
7.5
7.6
7.7
7.8
7.9
8
8.1
Miller Creek river miles
Conservation Easements
Miller Creek Watershed
The Nature Conservancy
MPG Holdings LLC
Missoula County
State of Montana
Canyon Village
0
0.1
0.2
0.4
0.6
0.8
Miles
CLARK FORK COALITION
N


Miller Creek Propery Ownership (#4)
GRAHAM
GATES
WEAR
FAECHNER
Little Park Creek
Limestone Creek
Park Creek
Miller Creek
Miller Creek river miles
Conservation Easements
Miller Creek Watershed
The Nature Conservancy
MPG Holdings LLC
Miller Creek Meadows LLC
Forest Service
State of Montana
0 0.25 0.5 1 1.5 2
Miles
CLARK FORK COALITION
N


Upper and Middle-Upper Reaches Maximum Daily Temp 2018 (C)
Maxium Daily Temp (C)
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
11-Jul
12-Jul
13-Jul
14-Jul
15-Jul
16-Jul
17-Jul
18-Jul
19-Jul
20-Jul
21-Jul
22-Jul
23-Jul
24-Jul
25-Jul
26-Jul
27-Jul
28-Jul
29-Jul
30-Jul
31-Jul
1-Aug
2-Aug
3-Aug
4-Aug
5-Aug
6-Aug
7-Aug
8-Aug
9-Aug
10-Aug
11-Aug
12-Aug
13-Aug
14-Aug
15-Aug
16-Aug
17-Aug
18-Aug
19-Aug
20-Aug
21-Aug
22-Aug
23-Aug
24-Aug
25-Aug
26-Aug
27-Aug
28-Aug
29-Aug
30-Aug
31-Aug
1-Sep
2-Sep
3-Sep
4-Sep
Date
Spooner
Wustner
MPG