

# INTRODUCTION

This *Middle Fork John Day Atlas* provides a compendium of GIS-based maps produced from data compiled and collected for the *John Day River Tributary Assessments, Grant County, Oregon* (Reclamation, 2008). The assessment area covers 23 miles of the Middle Fork John Day River and about 0.5 miles of Clear Creek near its confluence with the Middle Fork. The assessment area was divided into 15 panels for the generation of this *Atlas* as follows:

- Middle Fork Panel 1: Reaches MF1 and MF2 (downstream); River Miles 48 to 49.5
- Middle Fork Panel 2: Reach MF2 (upstream); River Miles 49.5 to 51
- Middle Fork Panel 3: Reach MF3; River Miles 51 to 52.7
- Middle Fork Panel 4: Reach MF 4; River Miles 52.7 to 53.9
- Middle Fork Panel 5: Reaches MF5 and MF6; River Miles 53.9 to 55.6
- Middle Fork Panel 6: Reaches MF7 and MF8 (downstream); River Miles 55.6 to 57
- Middle Fork Panel 7: Reach MF8 (upstream); River Miles 57 to 58
- Middle Fork Panel 8: Reaches MF9 and MF10 (downstream); River Miles 58 to 59.5
- Middle Fork Panel 9: Reach MF10 (upstream); River Miles 59.5 to 60.8
- Middle Fork Panel 10: Reach MF11; River Miles 60.8 to 62.5
- Middle Fork Panel 11: Reaches MF12 and MF13 (downstream); River Miles 62.5 to 64.5
- Middle Fork Panel 12: Reach MF13 (central); River Miles 64.5 to 66
- Middle Fork Panel 13: Reaches MF13 (upstream) and MF14; River Miles 66 to 67.7
- Middle Fork Panel 14: Reaches MF15, MF16, and CC1; River Miles 67.7 to 69
- Middle Fork Panel 15: Reaches MF17, MF18, MF19, and MF20; River Miles 69 to 70.8

Within the *Atlas*, GIS data were organized to illustrate mapping efforts for the following categories:

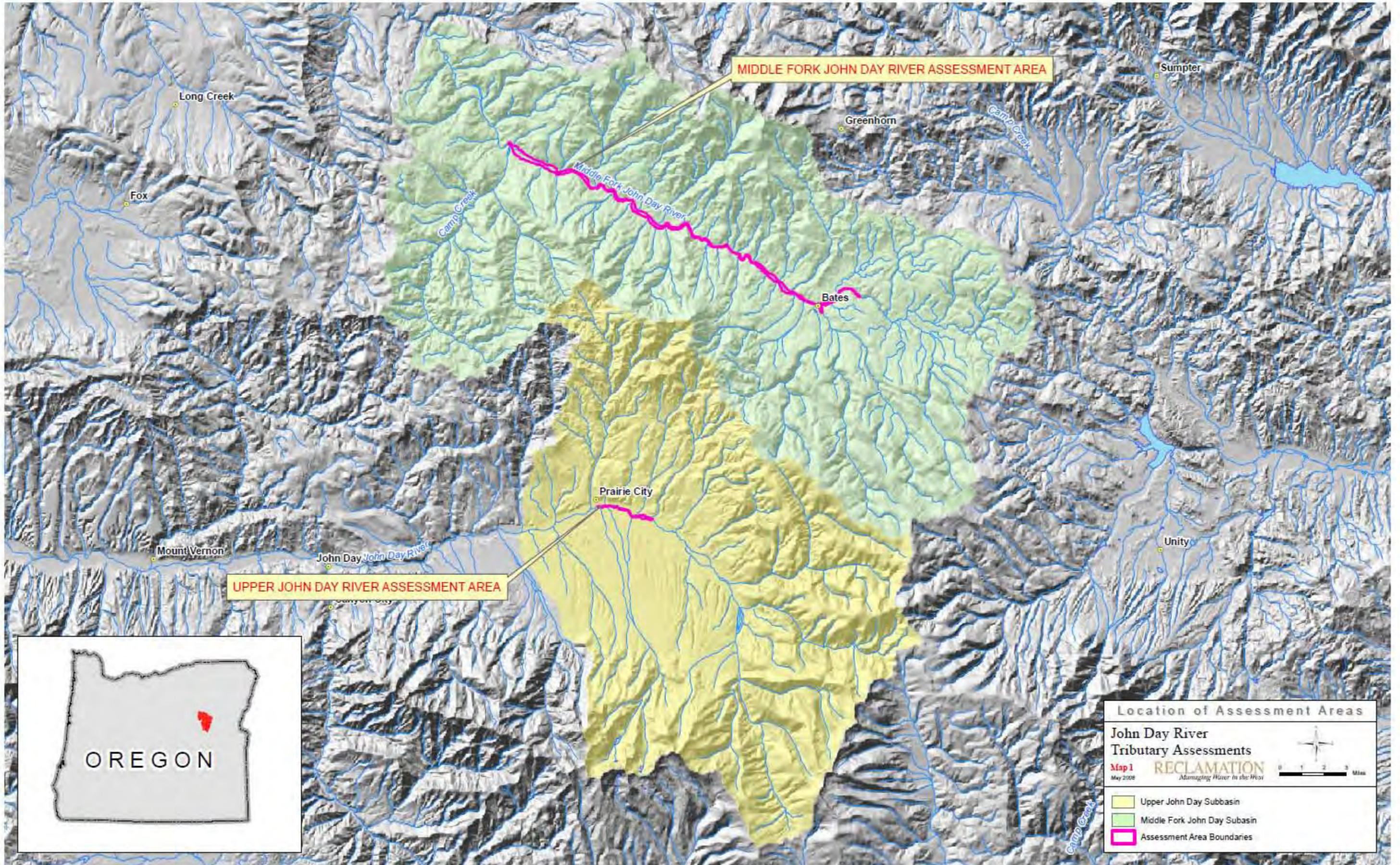
- Geology
- Human Features
- Vegetation
- Historic Channel Locations
- Potential Project Areas on the Forrest and Oxbow Conservation Properties

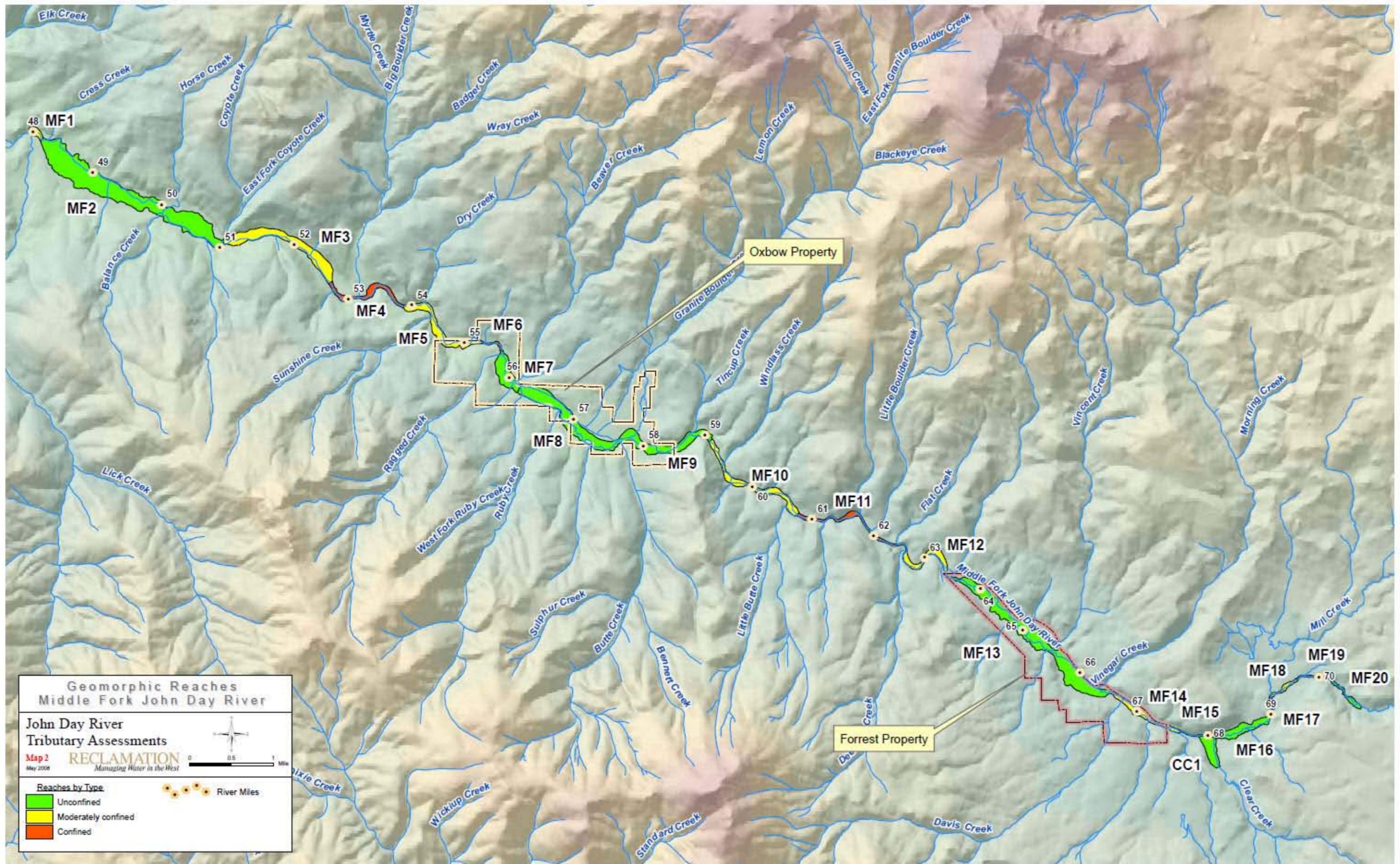
This *Atlas* also includes several general maps that cover the entire assessment area (maps 1-3).

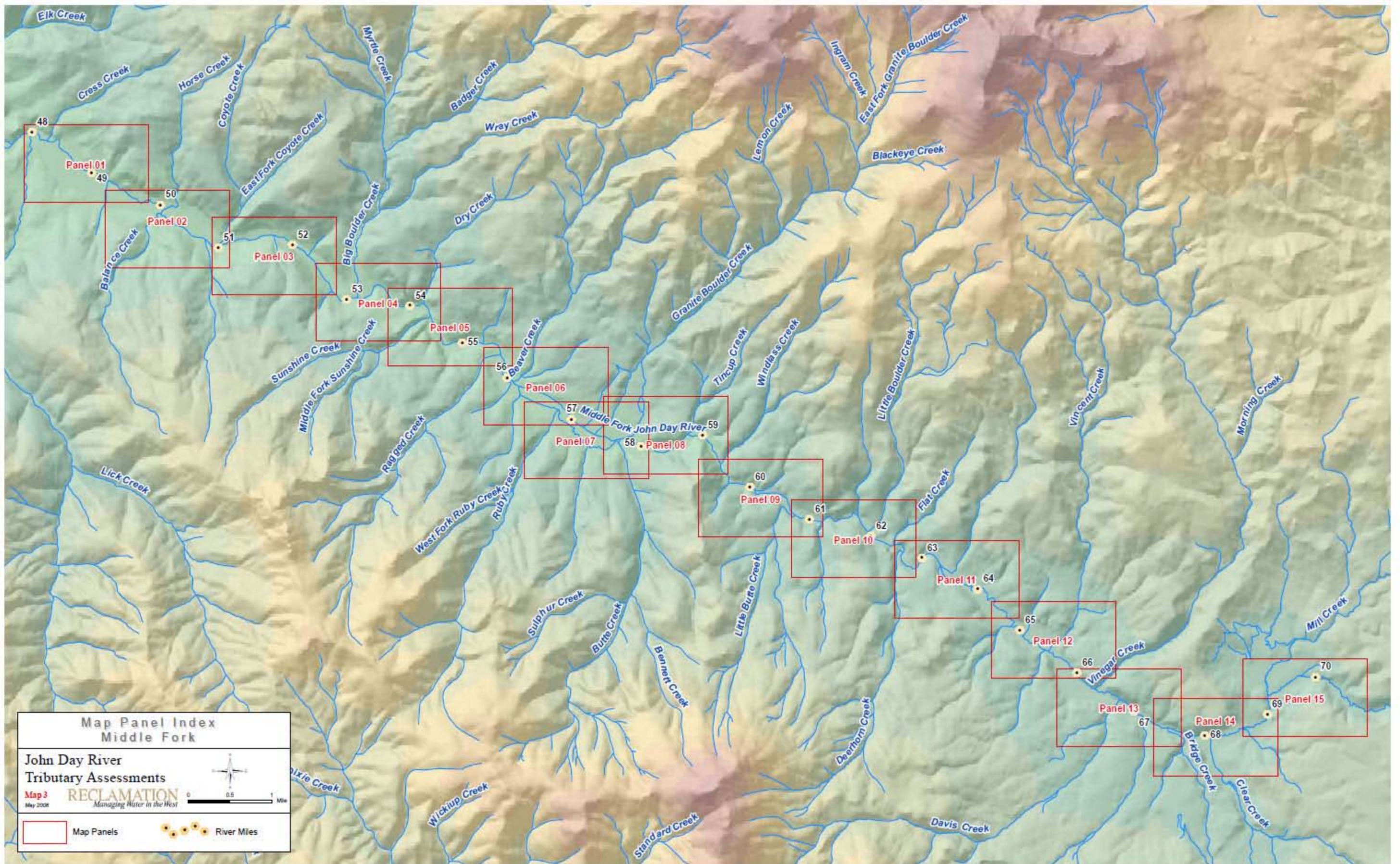
Metadata for GIS-based mapping are provided in the related GIS files, which are included on the DVD that accompanies the *Tributary Assessments* report. The *Middle Fork John Day Atlas* was generated by Kurt Wille in the Sedimentation and River Hydraulics Group at the Technical Service Center of the Bureau of Reclamation.

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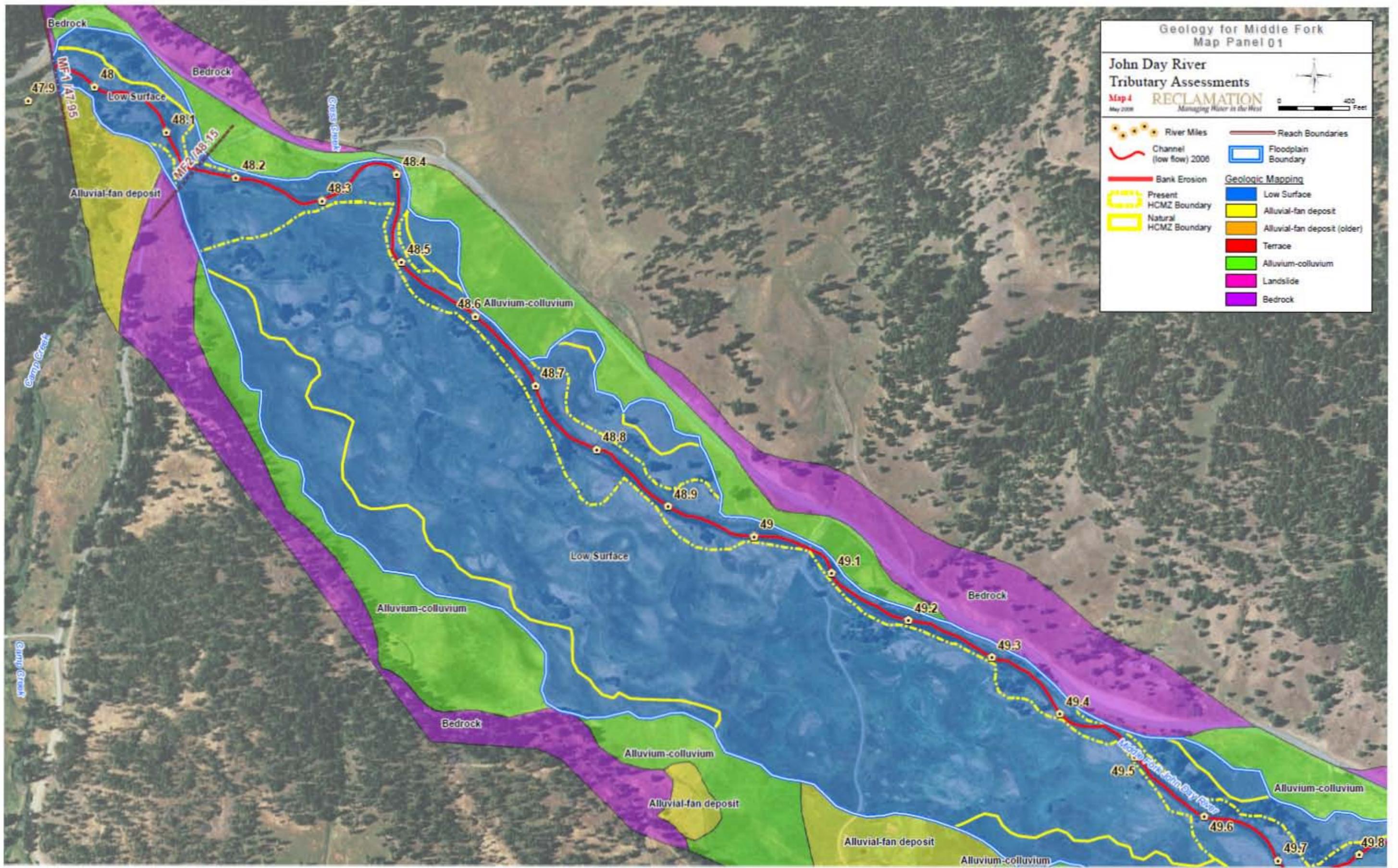
Map Panel Index  
Middle Fork

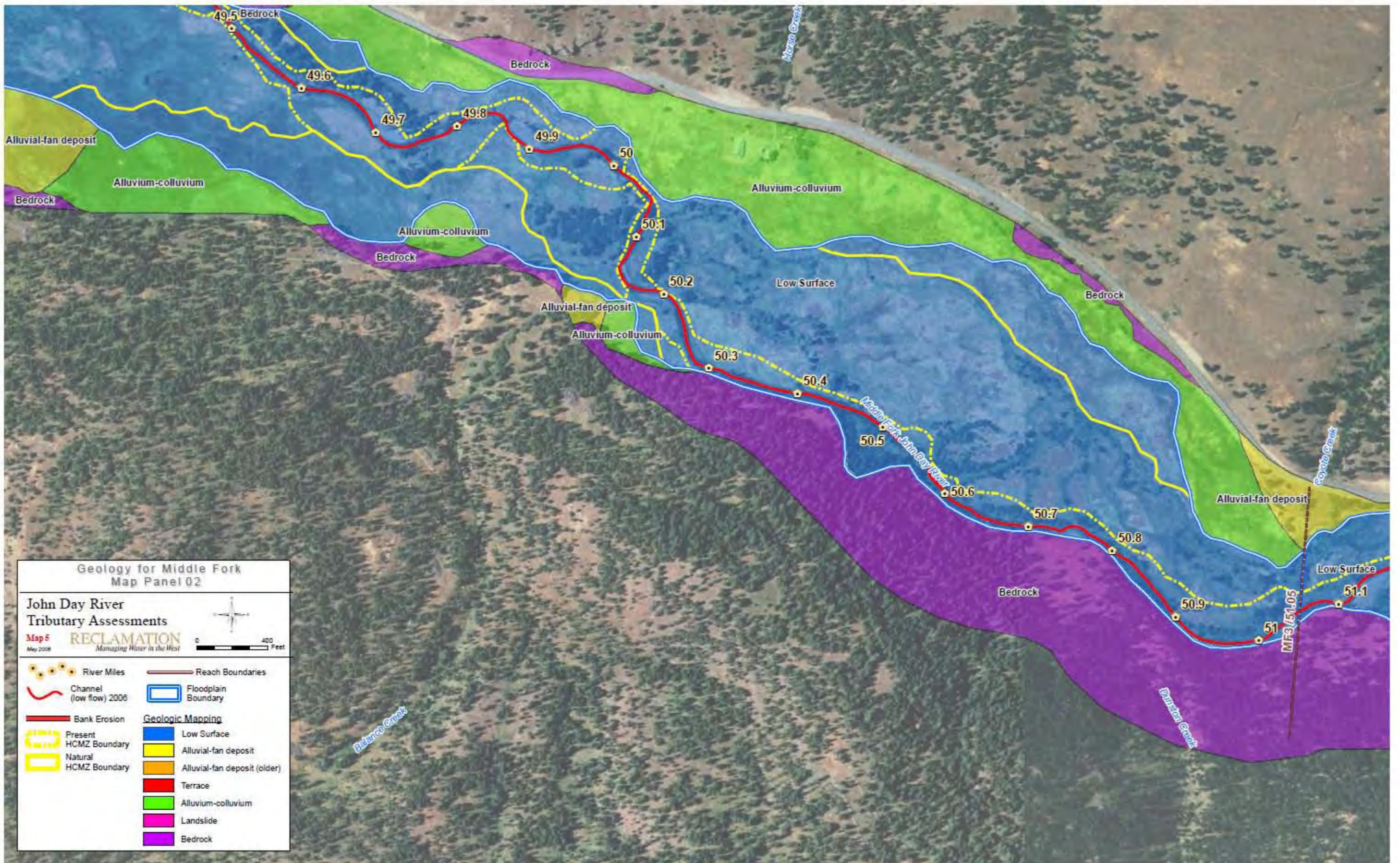
John Day River  
Tributary Assessments

Map 3 RECLAMATION  
May 2008 Managing Water in the West

Map Panels

River Miles

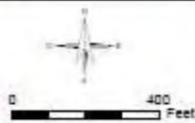




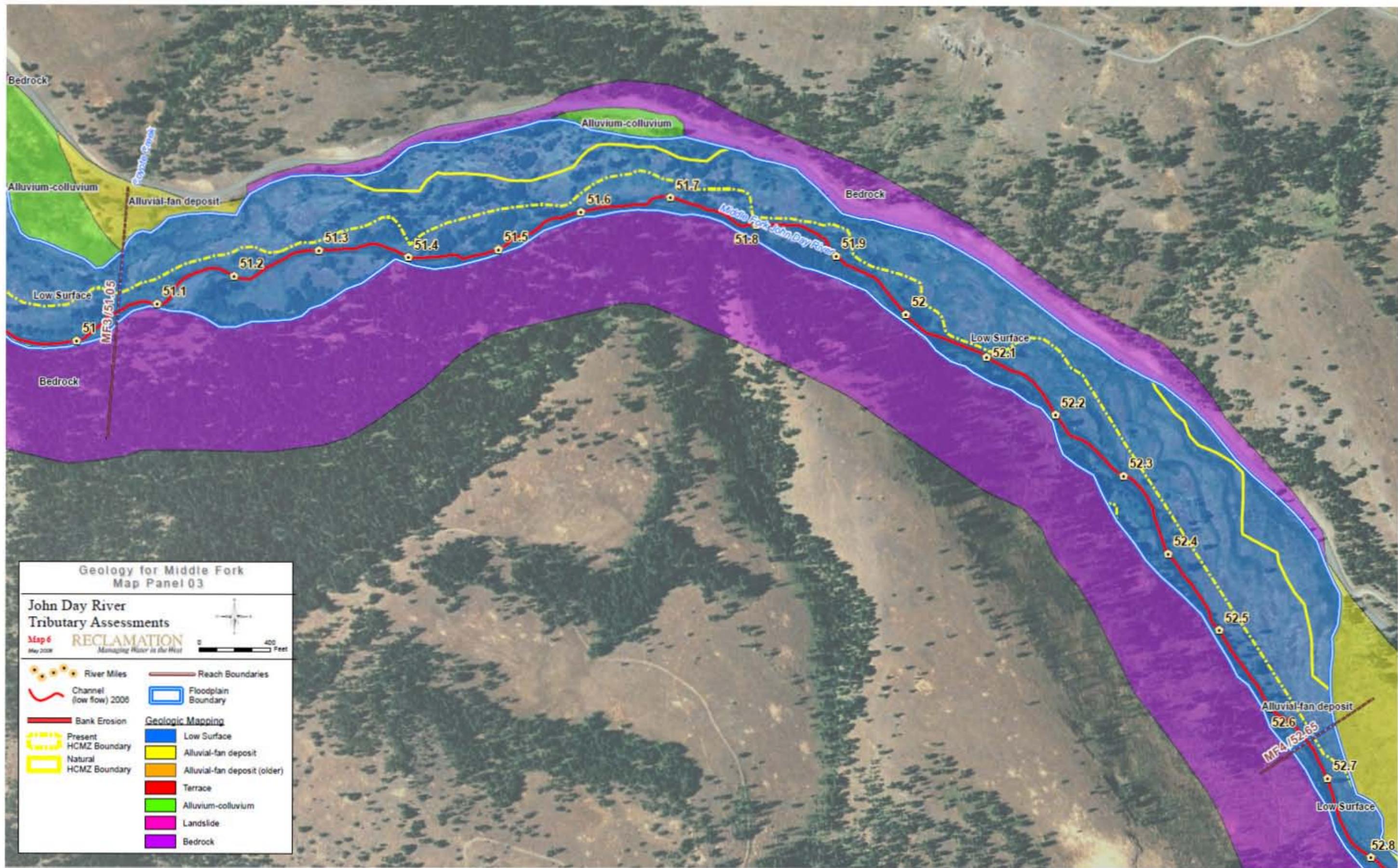
Geology for Middle Fork  
Map Panel 02

John Day River  
Tributary Assessments

Map 5 RECLAMATION  
May 2008 Managing Water in the West



- |                         |                              |
|-------------------------|------------------------------|
| River Miles             | Reach Boundaries             |
| Channel (low flow) 2006 | Floodplain Boundary          |
| Bank Erosion            | <b>Geologic Mapping</b>      |
| Present HCMZ Boundary   | Low Surface                  |
| Natural HCMZ Boundary   | Alluvial-fan deposit         |
|                         | Alluvial-fan deposit (older) |
|                         | Terrace                      |
|                         | Alluvium-colluvium           |
|                         | Landslide                    |
|                         | Bedrock                      |



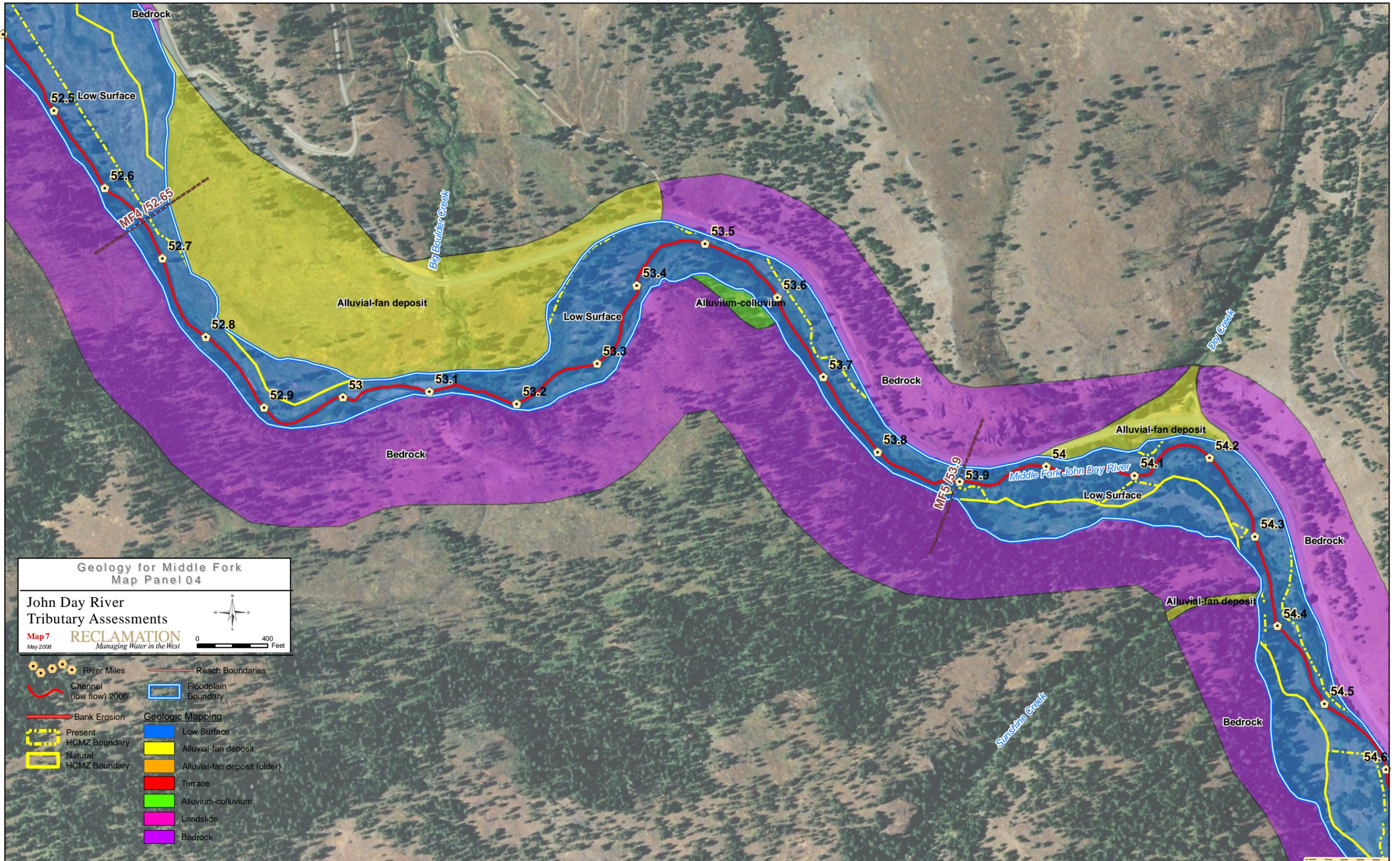
**Geology for Middle Fork**  
Map Panel 03

**John Day River**  
Tributary Assessments

Map 6 RECLAMATION  
May 2008 *Managing Water in the West*

400 Feet

River Miles	Reach Boundaries
Channel (low flow) 2008	Floodplain Boundary
Bank Erosion	<b>Geologic Mapping</b>
Present HCMZ Boundary	Low Surface
Natural HCMZ Boundary	Alluvial-fan deposit
	Alluvial-fan deposit (older)
	Terrace
	Alluvium-colluvium
	Landslide
	Bedrock

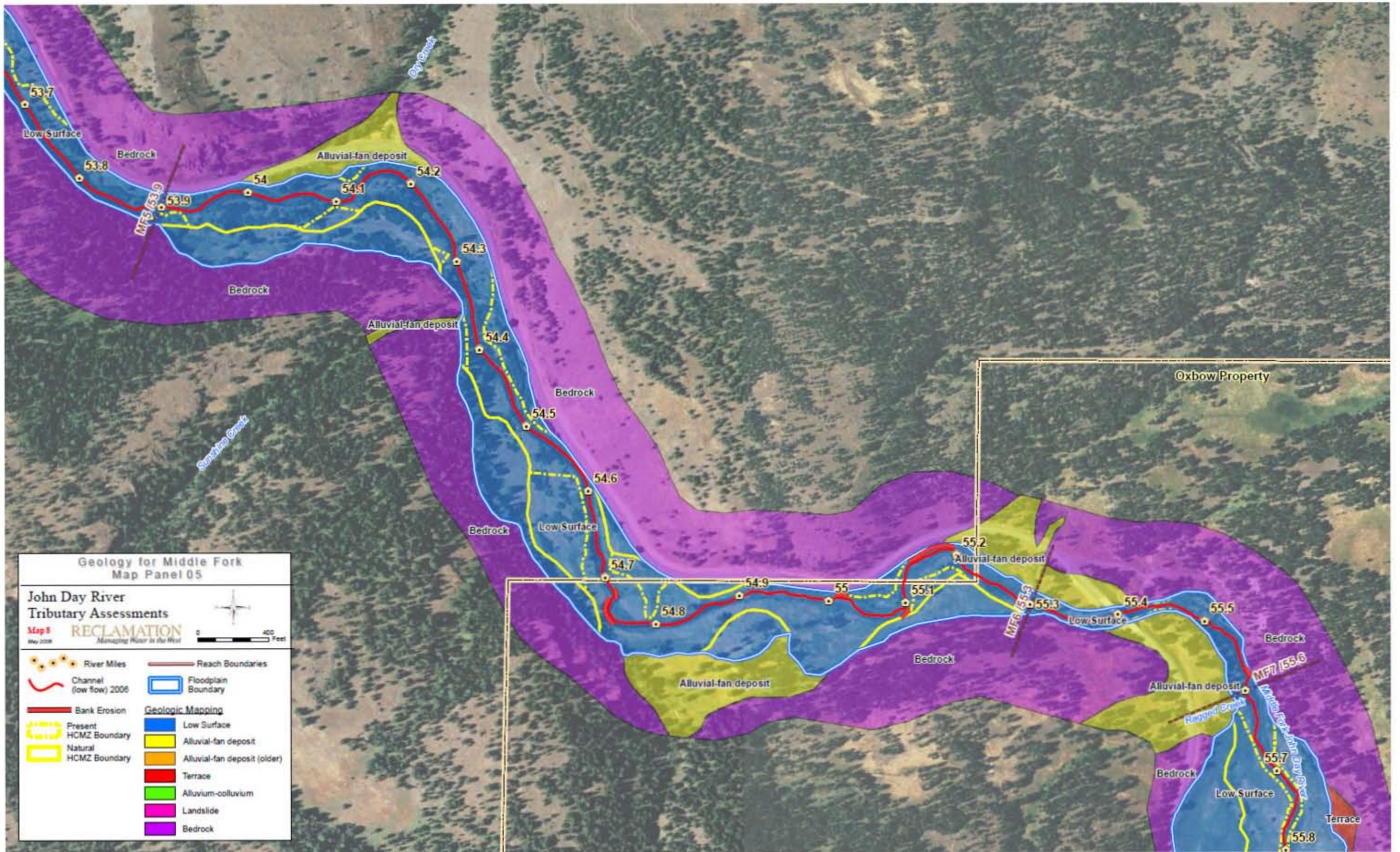


Geology for Middle Fork  
Map Panel 04

John Day River  
Tributary Assessments

Map 7 RECLAMATION  
May 2008 Managing Water in the West

- River Miles
- Reach Boundaries
- Channel (low flow) 2006
- Floodplain Boundary
- Bank Erosion
- Present HCMZ Boundary
- Natural HCMZ Boundary
- Geologic Mapping
- Low Surface
- Alluvial-fan deposit
- Alluvial-fan deposit (older)
- Terrace
- Alluvium-colluvium
- Landslide
- Bedrock



Geology for Middle Fork  
Map Panel 05

John Day River  
Tributary Assessments

Map 8 RECLAMATION  
May 2008 Managing Water in the West

- |  |                         |                         |                              |
|--|-------------------------|-------------------------|------------------------------|
|  | River Miles             |                         | Reach Boundaries             |
|  | Channel (low flow) 2006 |                         | Floodplain Boundary          |
|  | Bank Erosion            | <b>Geologic Mapping</b> |                              |
|  | Present HCMZ Boundary   |                         | Low Surface                  |
|  | Natural HCMZ Boundary   |                         | Alluvial-fan deposit         |
|  |                         |                         | Alluvial-fan deposit (older) |
|  |                         |                         | Terrace                      |
|  |                         |                         | Alluvium-colluvium           |
|  |                         |                         | Landslide                    |
|  |                         |                         | Bedrock                      |

Oxbow Property

Terrace

Geology for Middle Fork  
Map Panel 06

John Day River  
Tributary Assessments

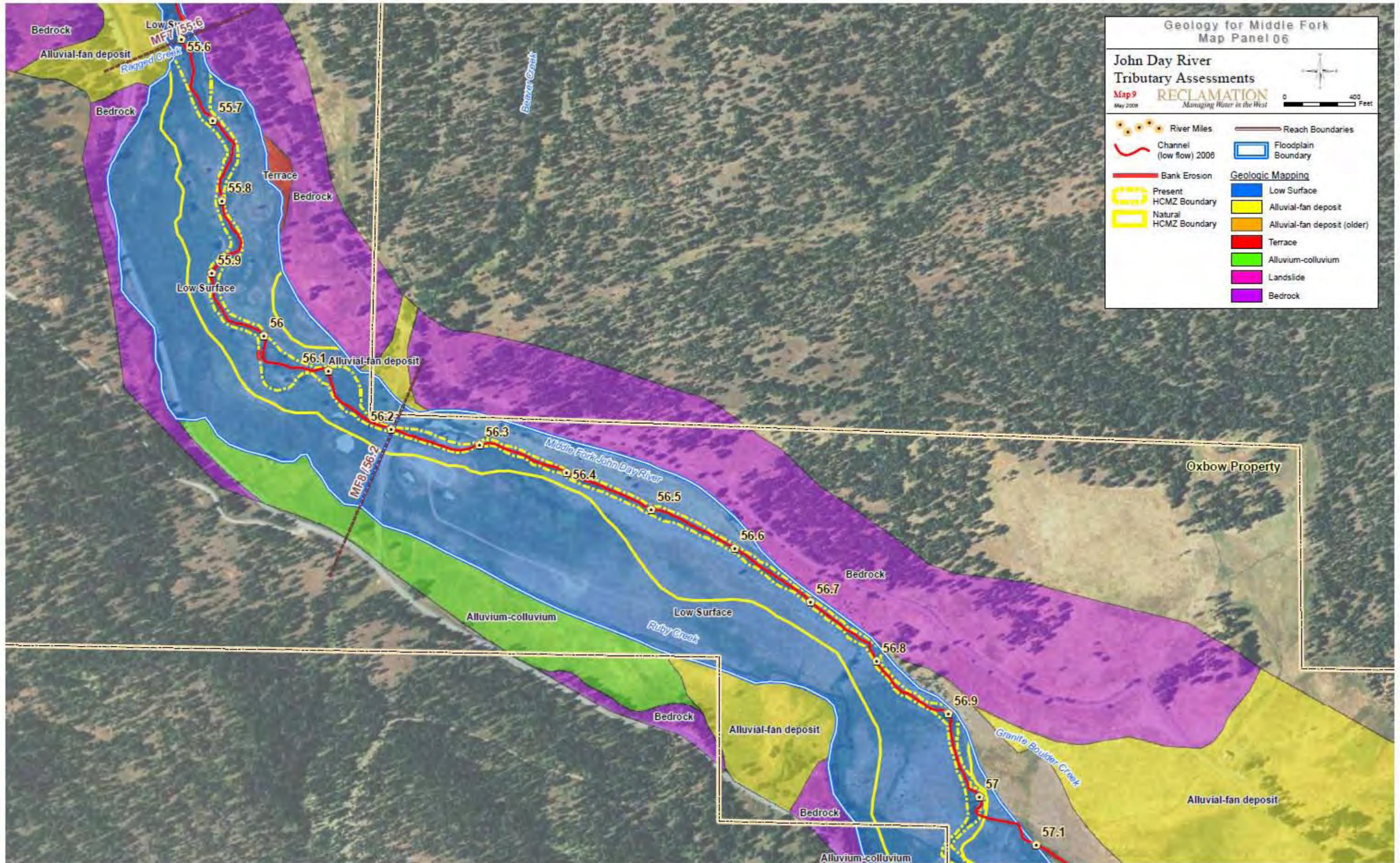
Map 9  
May 2008

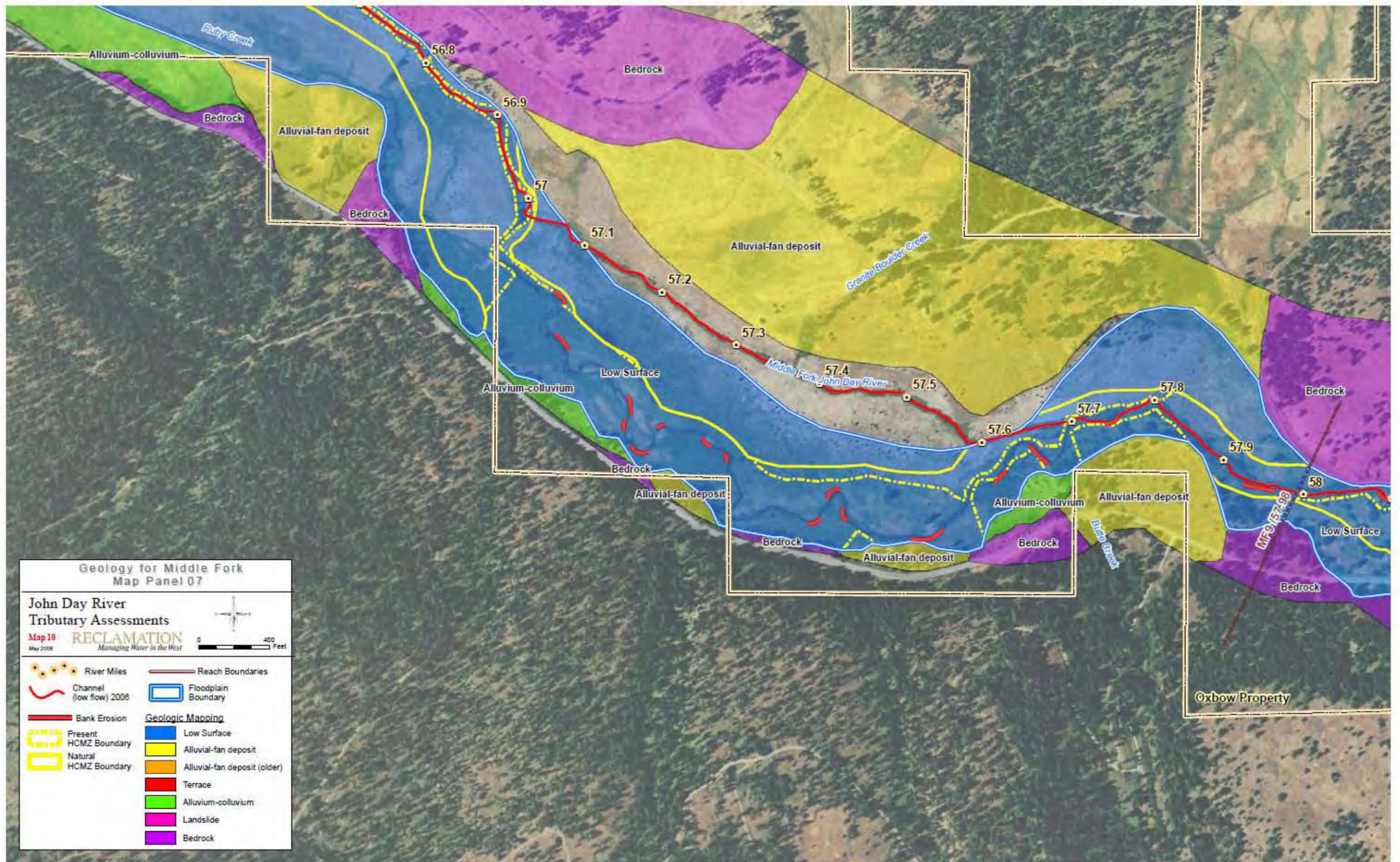
RECLAMATION  
Managing Water in the West



0 400 Feet

- |  |                         |                         |                              |
|--|-------------------------|-------------------------|------------------------------|
|  | River Miles             |                         | Reach Boundaries             |
|  | Channel (low flow) 2008 |                         | Floodplain Boundary          |
|  | Bank Erosion            | <b>Geologic Mapping</b> |                              |
|  | Present HCMZ Boundary   |                         | Low Surface                  |
|  | Natural HCMZ Boundary   |                         | Alluvial-fan deposit         |
|  |                         |                         | Alluvial-fan deposit (older) |
|  |                         |                         | Terrace                      |
|  |                         |                         | Alluvium-colluvium           |
|  |                         |                         | Landslide                    |
|  |                         |                         | Bedrock                      |



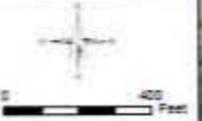


Oxbow Property

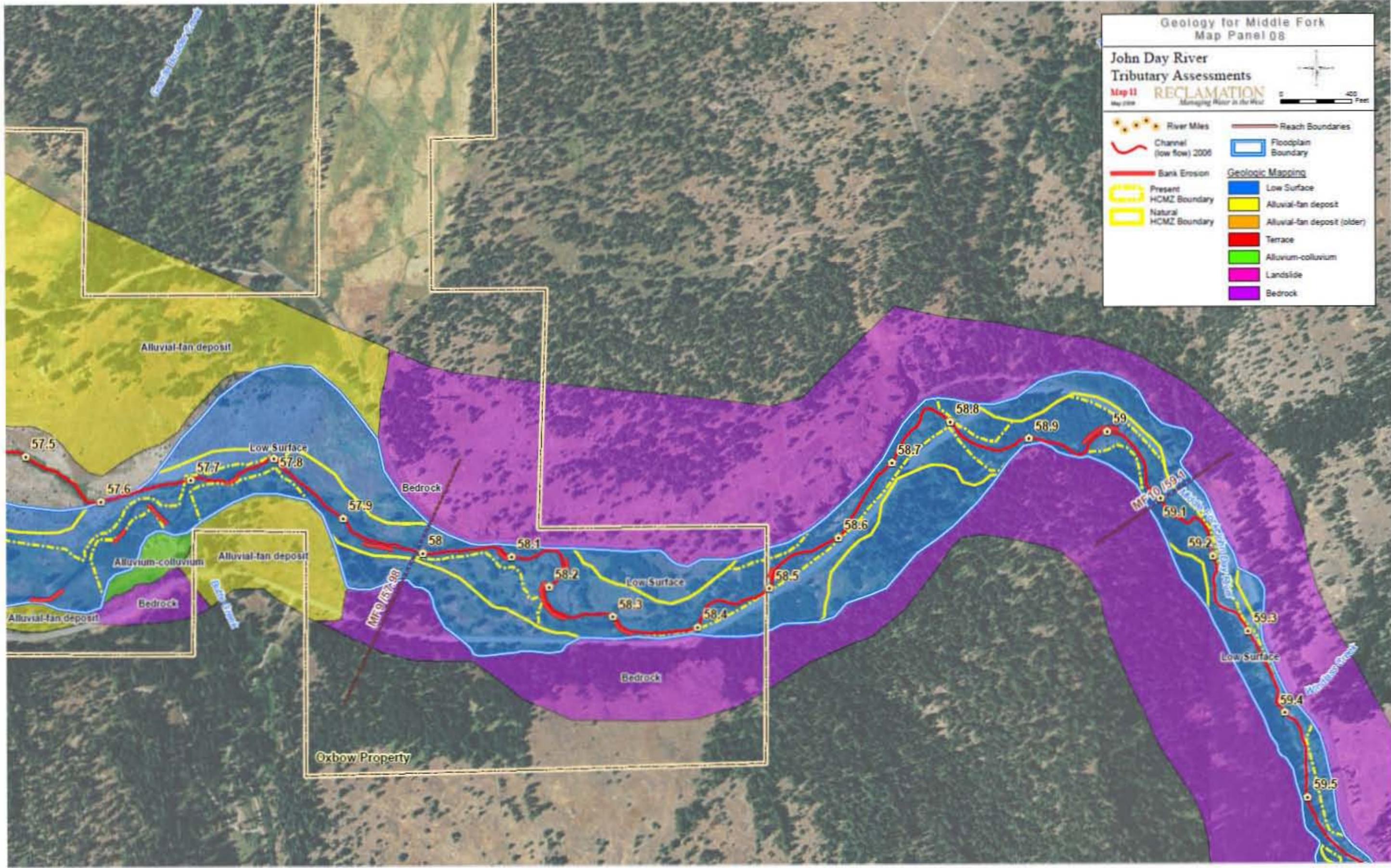
Geology for Middle Fork  
Map Panel 08

John Day River  
Tributary Assessments

Map 11  
May 2008



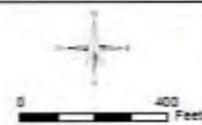
- |                         |                              |  |
|-------------------------|------------------------------|--|
| River Miles             | Reach Boundaries             |  |
| Channel (low flow) 2006 | Floodplain Boundary          |  |
| Bank Erosion            | <b>Geologic Mapping</b>      |  |
| Present HCMZ Boundary   | Low Surface                  |  |
| Natural HCMZ Boundary   | Alluvial-fan deposit         |  |
|                         | Alluvial-fan deposit (older) |  |
|                         | Terrace                      |  |
|                         | Alluvium-colluvium           |  |
|                         | Landslide                    |  |
|                         | Bedrock                      |  |



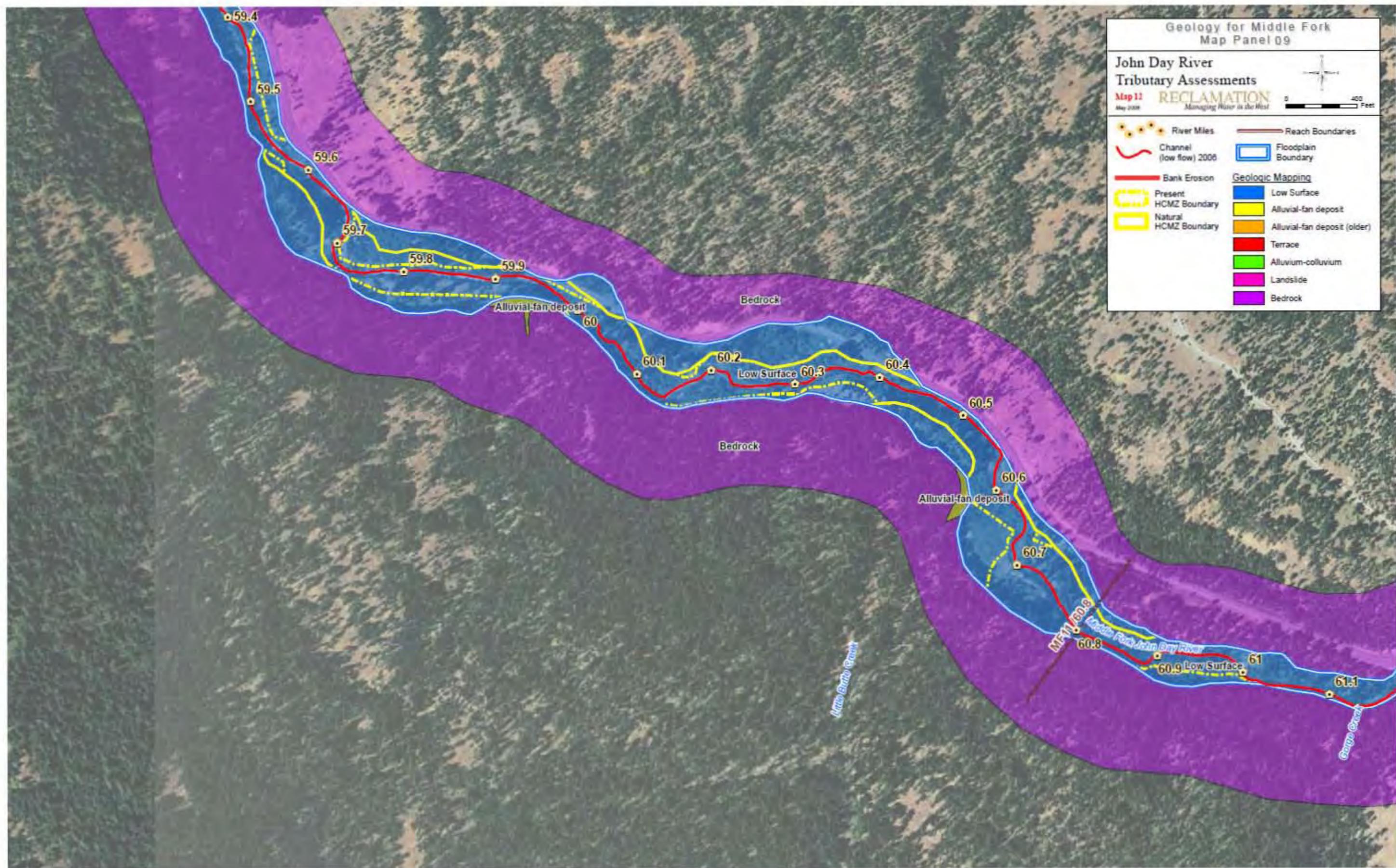
Geology for Middle Fork  
Map Panel 09

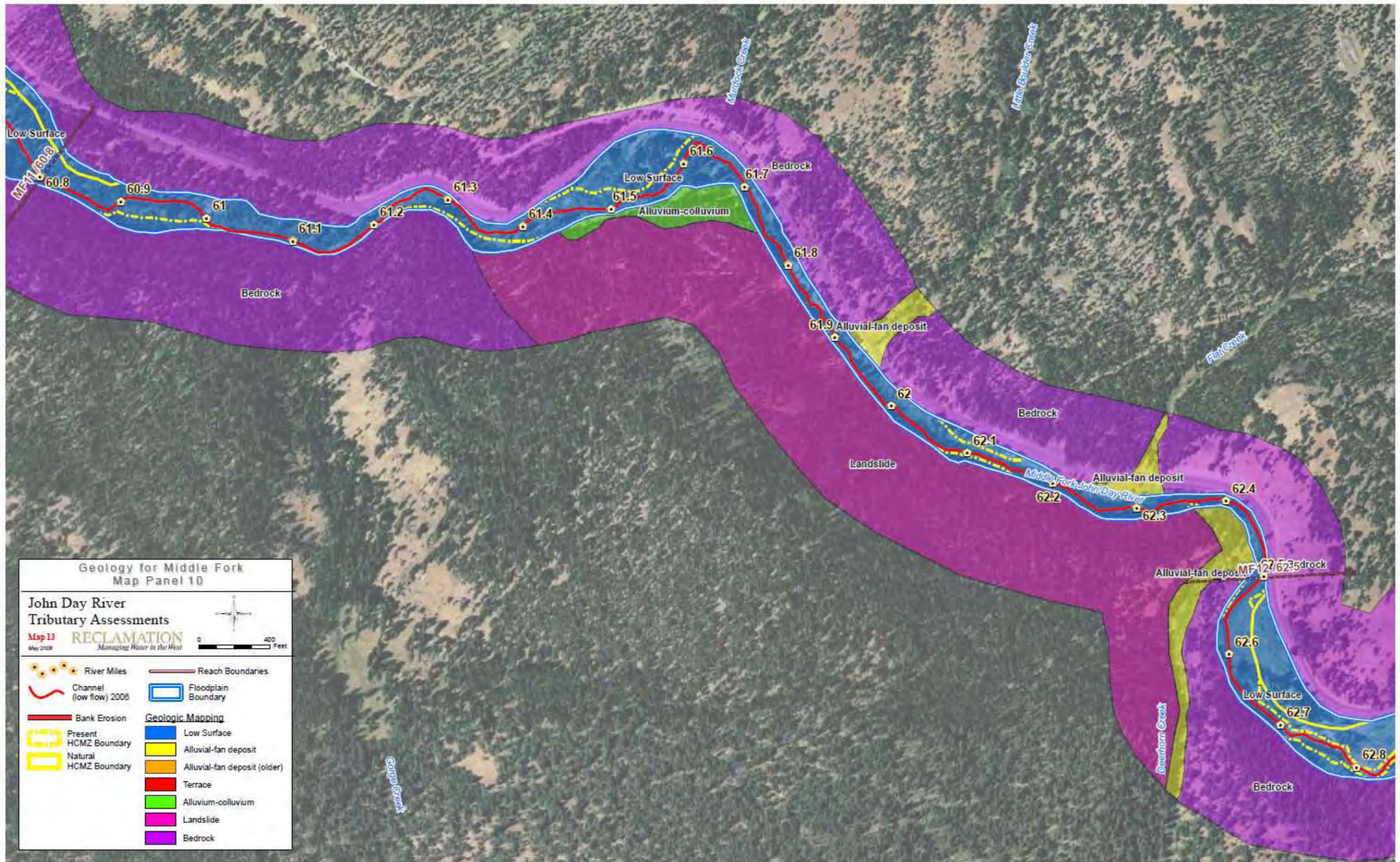
John Day River  
Tributary Assessments

Map 11 RECLAMATION  
May 2008 Managing Water in the West



- |                         |                              |
|-------------------------|------------------------------|
| River Miles             | Reach Boundaries             |
| Channel (low flow) 2008 | Floodplain Boundary          |
| Bank Erosion            | <b>Geologic Mapping</b>      |
| Present HCMZ Boundary   | Low Surface                  |
| Natural HCMZ Boundary   | Alluvial-fan deposit         |
|                         | Alluvial-fan deposit (older) |
|                         | Terrace                      |
|                         | Alluvium-colluvium           |
|                         | Landslide                    |
|                         | Bedrock                      |





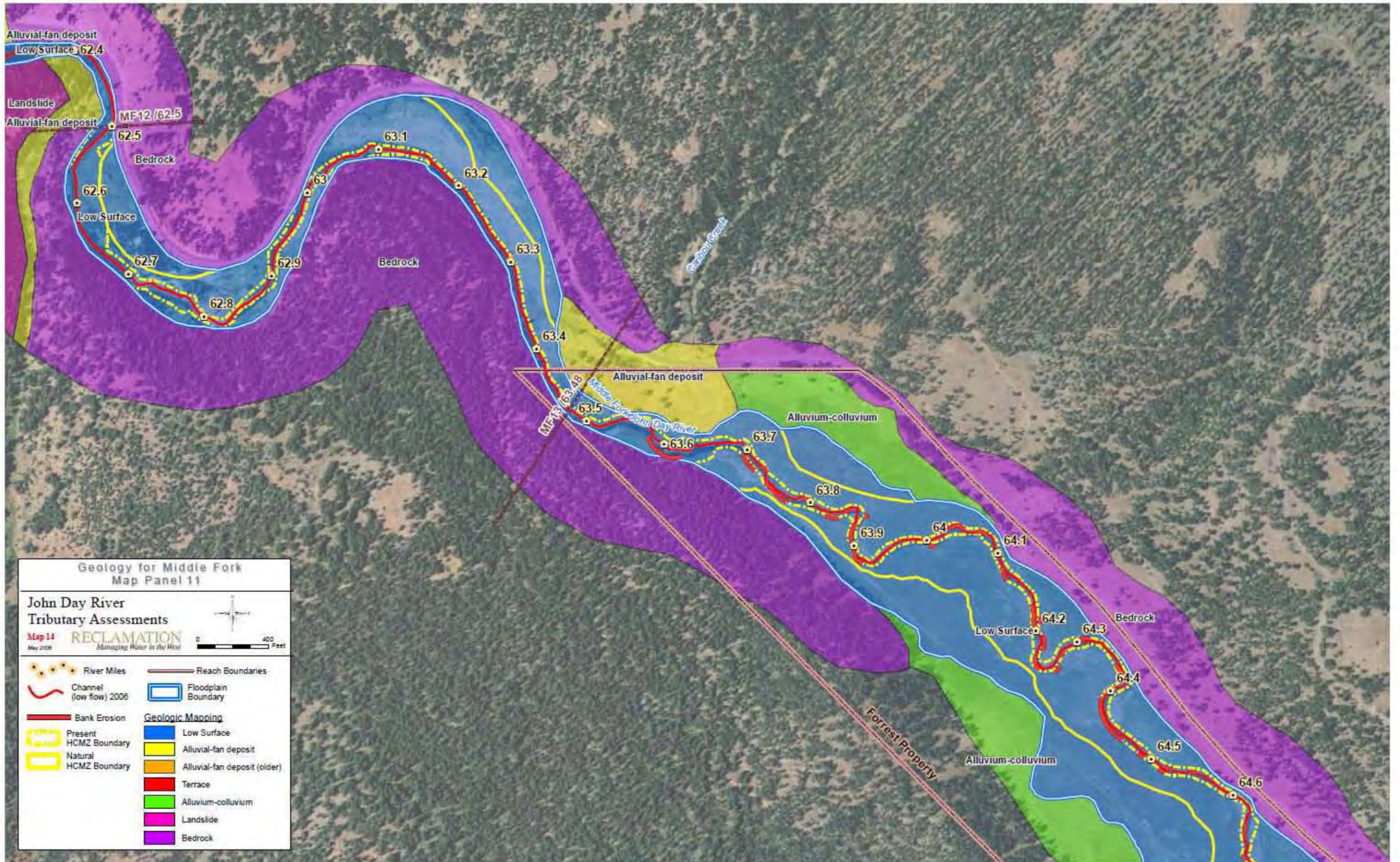
Geology for Middle Fork  
Map Panel 10

**John Day River  
Tributary Assessments**

Map 13 RECLAMATION  
May 2008 Managing Water in the West

0 400 Feet

River Miles	Reach Boundaries
Channel (low flow) 2006	Floodplain Boundary
Bank Erosion	<b>Geologic Mapping</b>
Present HCMZ Boundary	Low Surface
Natural HCMZ Boundary	Alluvial-fan deposit
	Alluvial-fan deposit (older)
	Terrace
	Alluvium-colluvium
	Landslide
	Bedrock

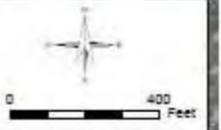


Geology for Middle Fork  
Map Panel 12

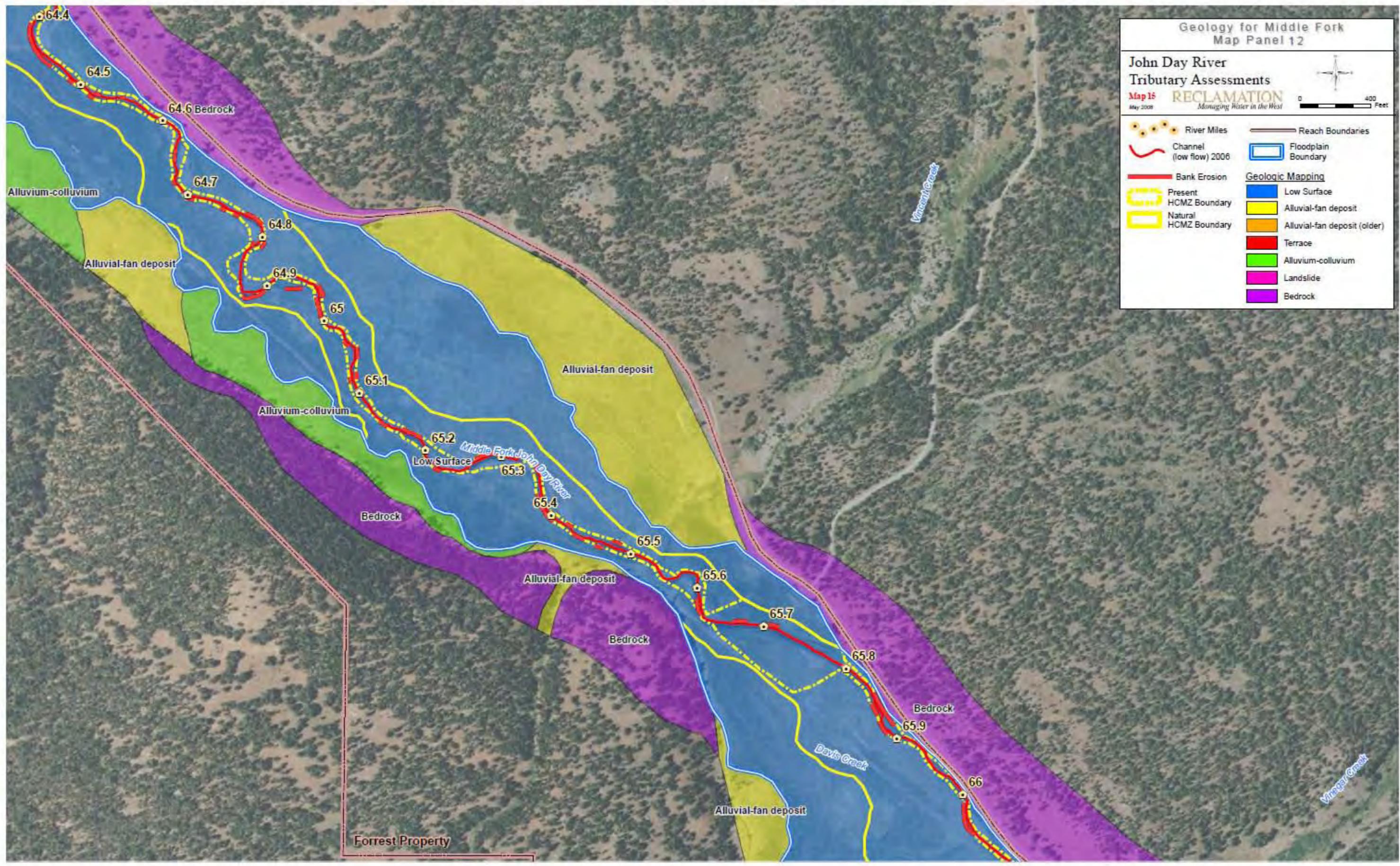
John Day River  
Tributary Assessments

Map 15  
May 2008

RECLAMATION  
Managing Water in the West

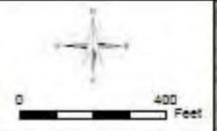


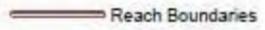
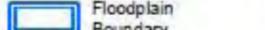
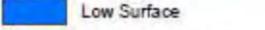
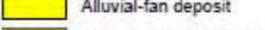
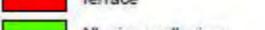
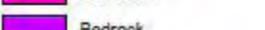
	River Miles		Reach Boundaries
	Channel (low flow) 2006		Floodplain Boundary
	Bank Erosion	<b>Geologic Mapping</b>	
	Present HCMZ Boundary		Low Surface
	Natural HCMZ Boundary		Alluvial-fan deposit
			Alluvial-fan deposit (older)
			Terrace
			Alluvium-colluvium
			Landslide
			Bedrock

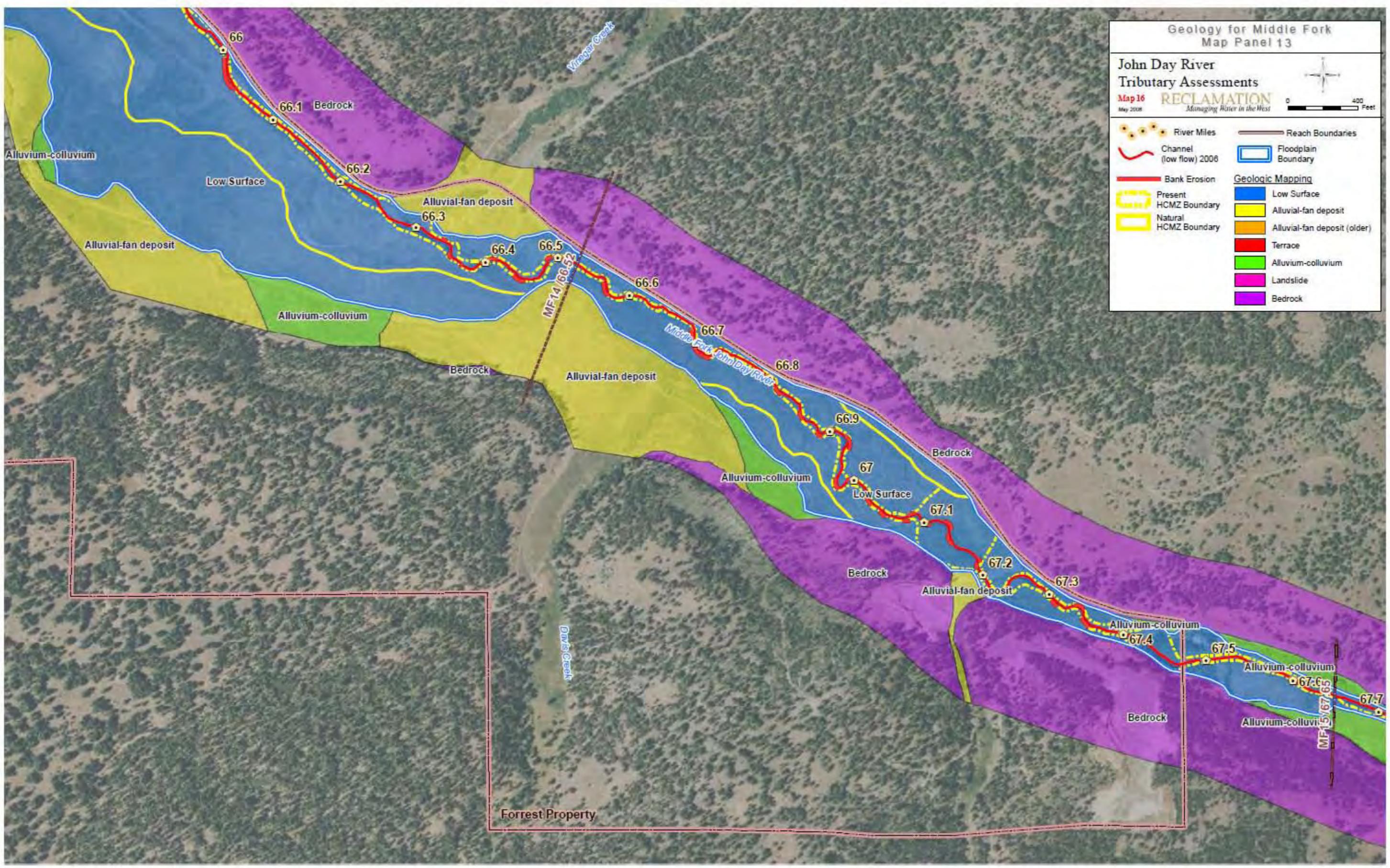


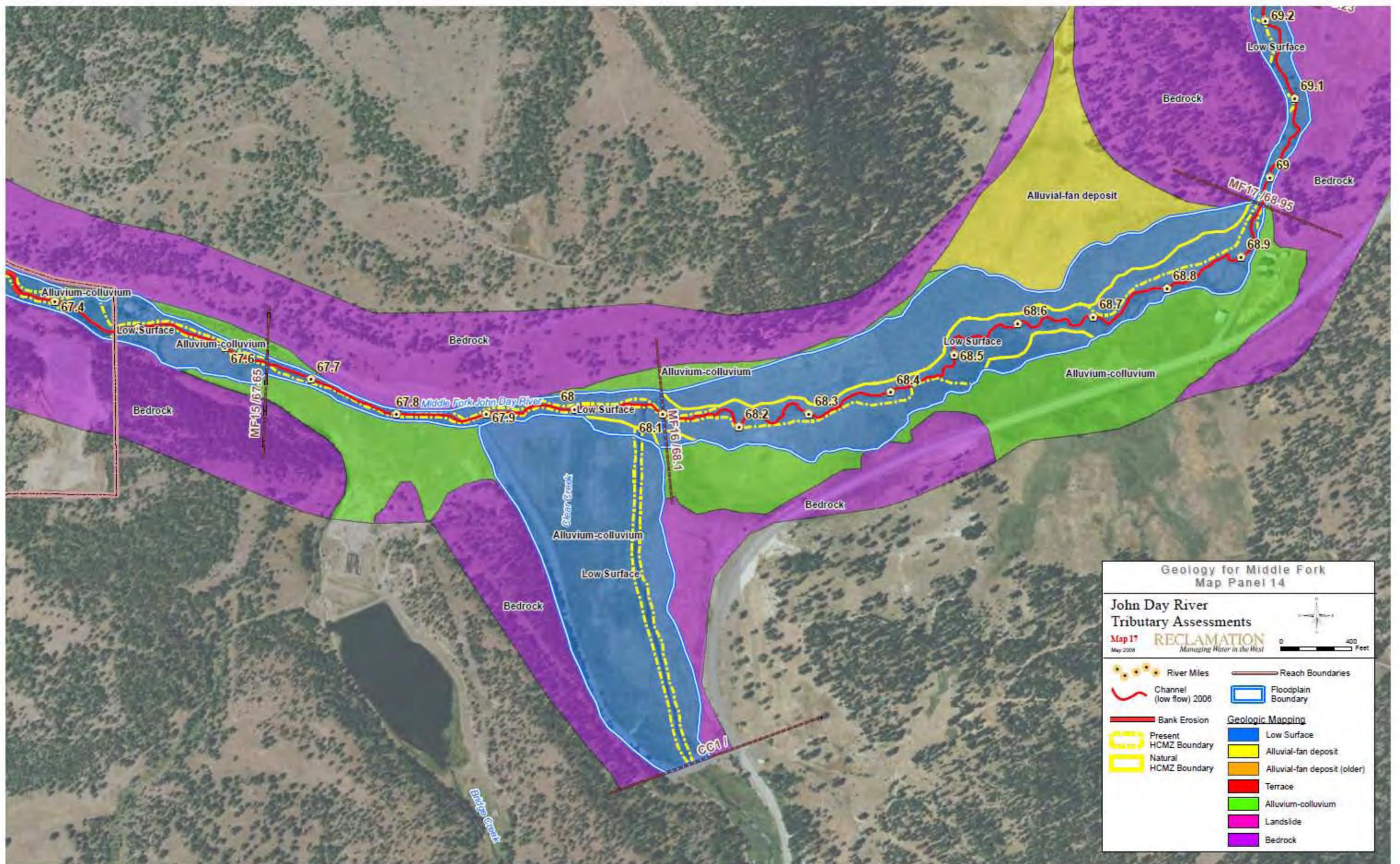
Geology for Middle Fork  
Map Panel 13

**John Day River  
Tributary Assessments**  
 Map 16 RECLAMATION  
 May 2008 *Managing Water in the West*



 River Miles	 Reach Boundaries
 Channel (low flow) 2006	 Floodplain Boundary
 Bank Erosion	<b>Geologic Mapping</b>
 Present HCMZ Boundary	 Low Surface
 Natural HCMZ Boundary	 Alluvial-fan deposit
	 Alluvial-fan deposit (older)
	 Terrace
	 Alluvium-colluvium
	 Landslide
	 Bedrock





**Geology for Middle Fork**  
Map Panel 14

**John Day River**  
Tributary Assessments

Map 17 RECLAMATION  
May 2008 Managing Water in the West

River Miles

Channel (low flow) 2006

Bank Erosion

Present HCMZ Boundary

Natural HCMZ Boundary

Reach Boundaries

Floodplain Boundary

**Geologic Mapping**

Low Surface

Alluvial-fan deposit

Alluvial-fan deposit (older)

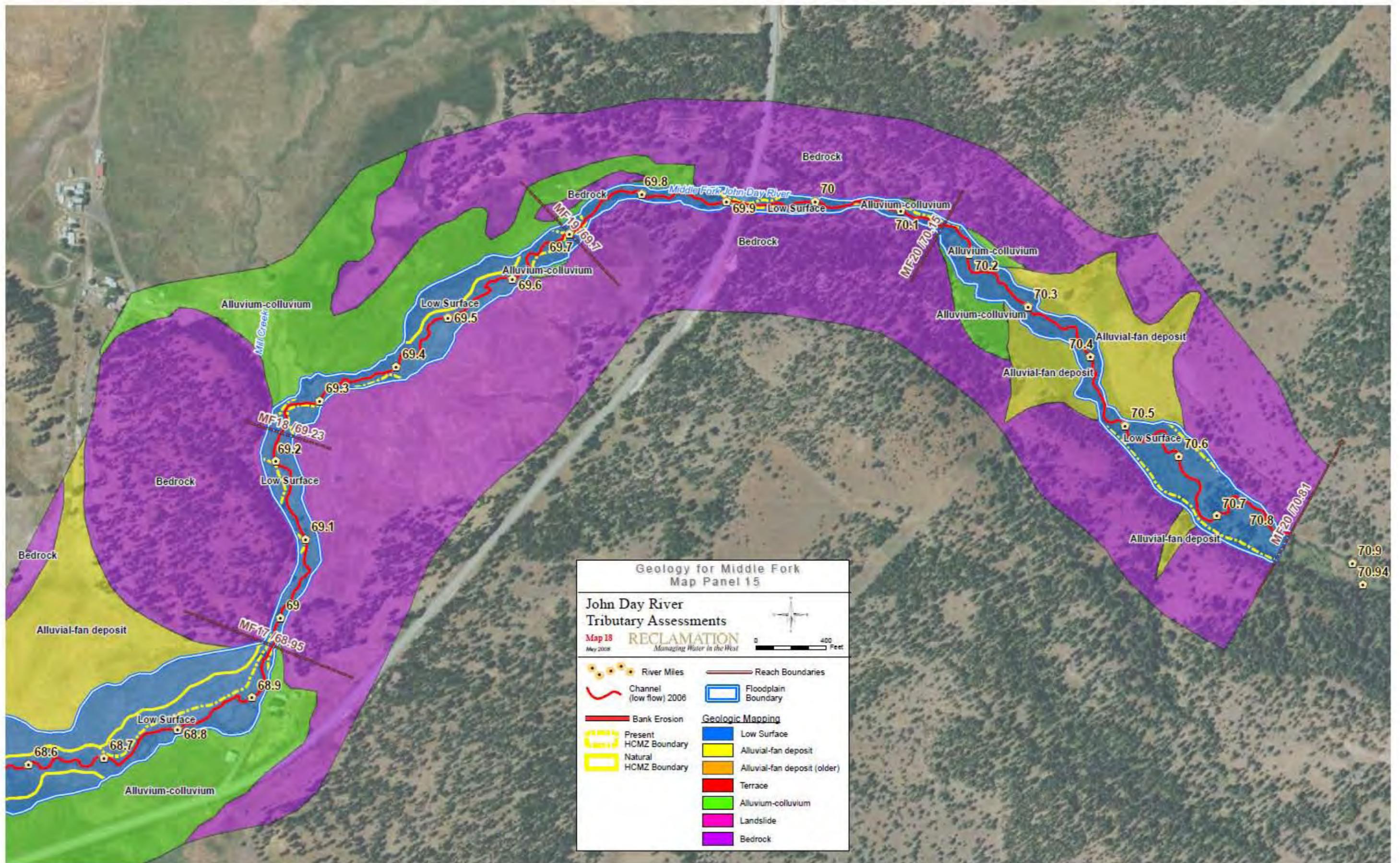
Terrace

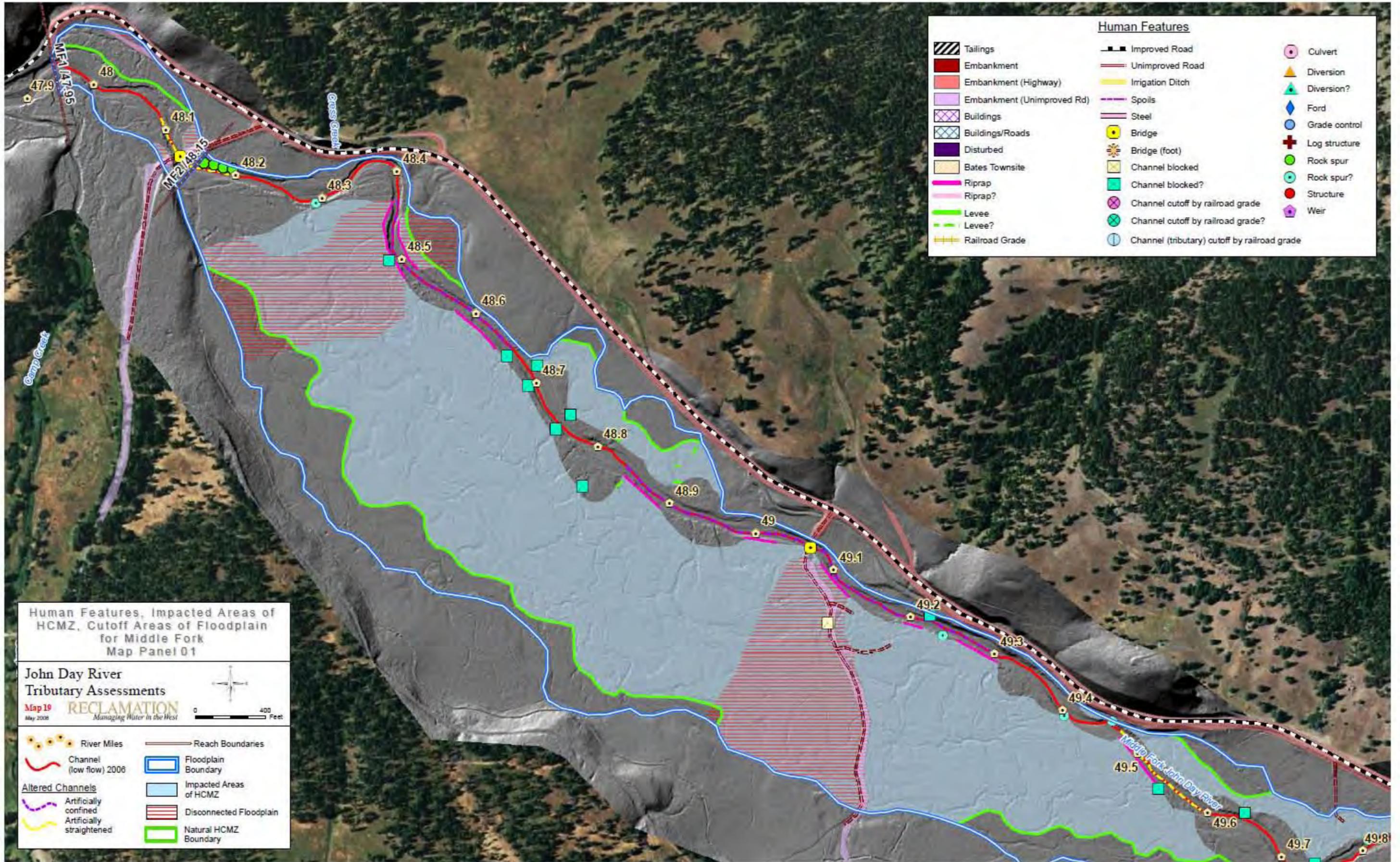
Alluvium-colluvium

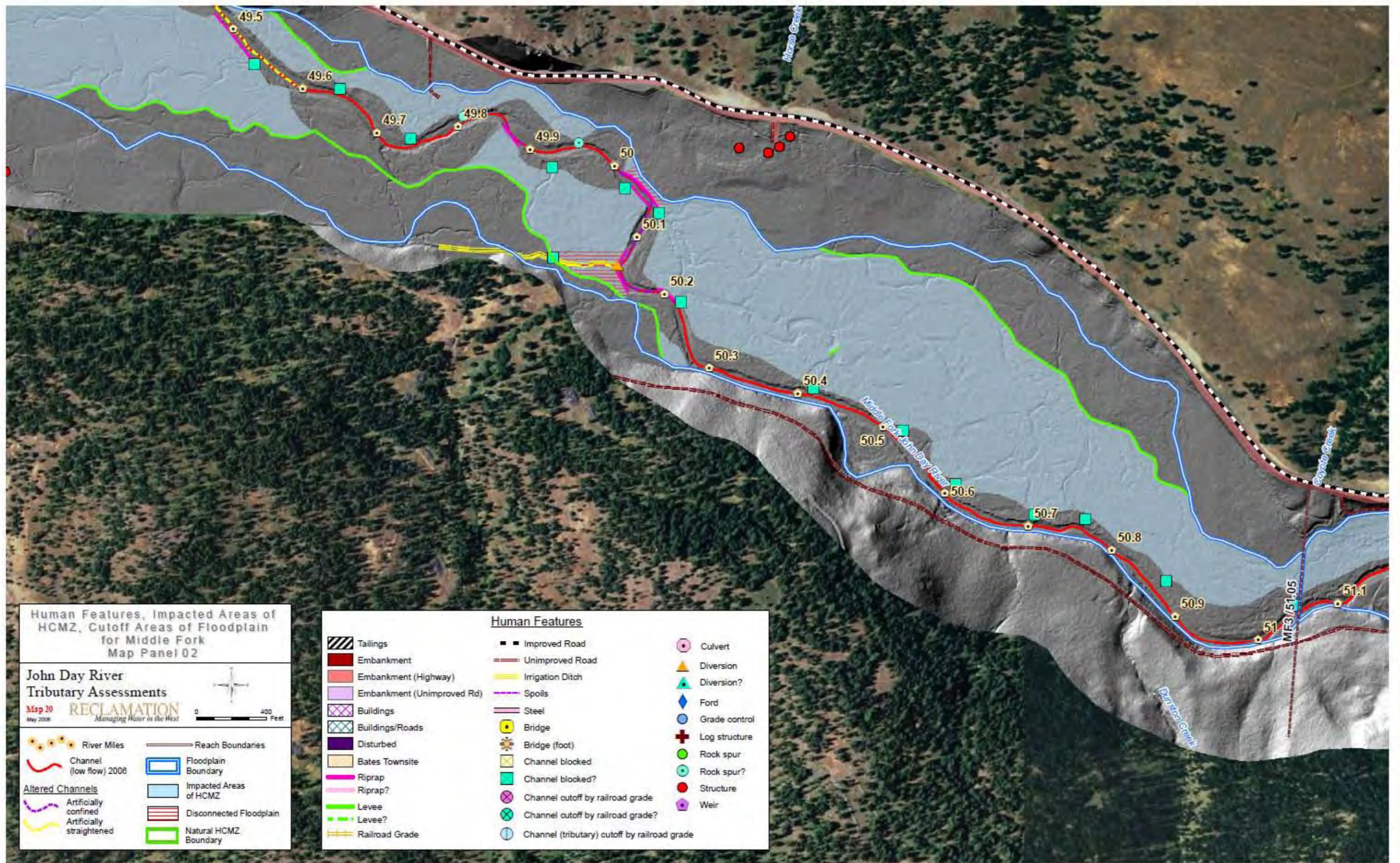
Landslide

Bedrock

0 400 Feet





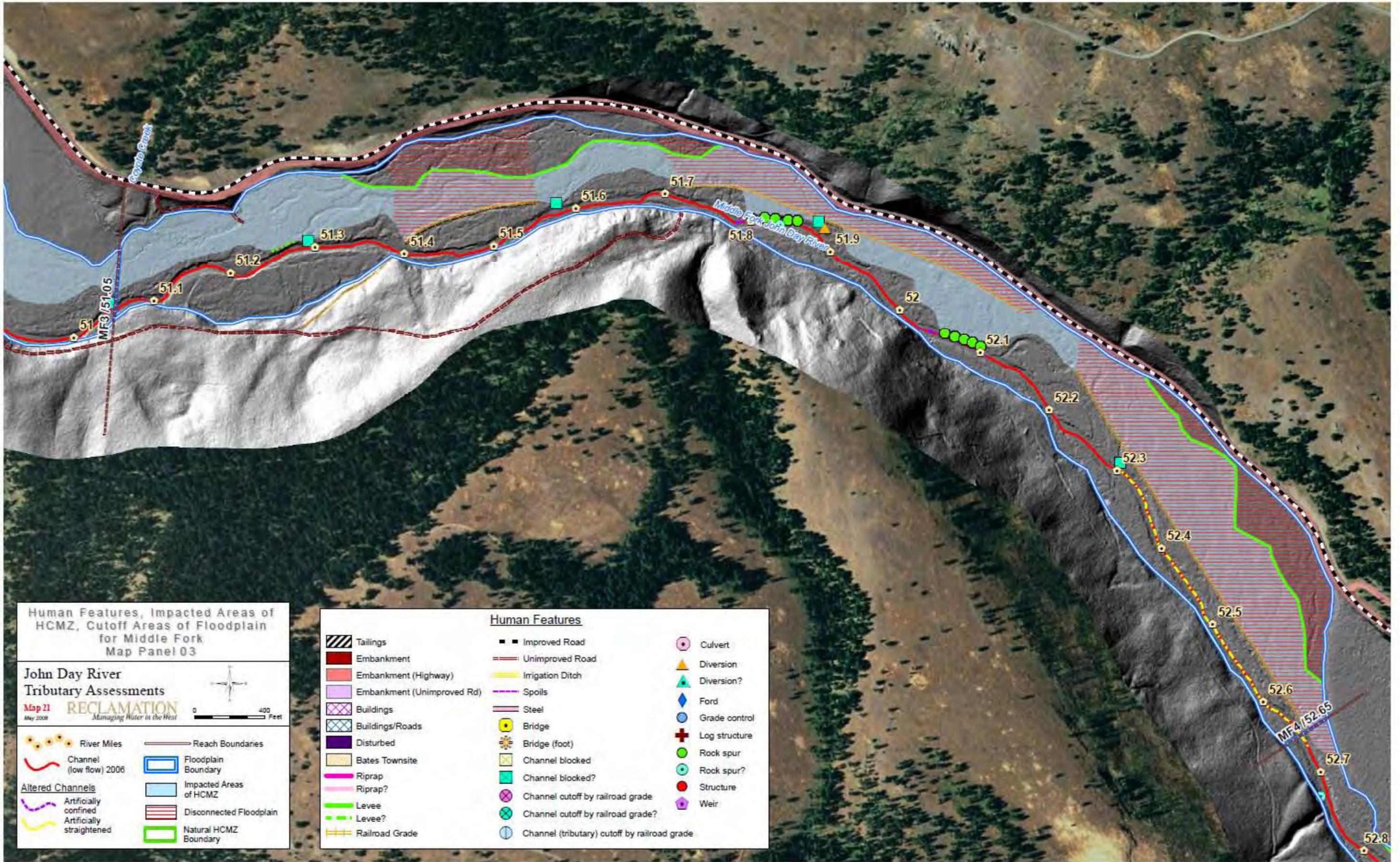


Human Features, Impacted Areas of HCMZ, Cutoff Areas of Floodplain for Middle Fork  
Map Panel 02

**John Day River**  
Tributary Assessments  
Map 20  
May 2008  
RECLAMATION  
Managing Water in the West

- River Miles
- Channel (low flow) 2006
- Artificially confined
- Artificially straightened
- Reach Boundaries
- Floodplain Boundary
- Impacted Areas of HCMZ
- Disconnected Floodplain
- Natural HCMZ Boundary

- Human Features**
- Tailings
  - Embankment
  - Embankment (Highway)
  - Embankment (Unimproved Rd)
  - Buildings
  - Buildings/Roads
  - Disturbed
  - Bates Townsite
  - Riprap
  - Riprap?
  - Levee
  - Levee?
  - Railroad Grade
  - Improved Road
  - Unimproved Road
  - Irrigation Ditch
  - Spoils
  - Steel
  - Bridge
  - Bridge (foot)
  - Channel blocked
  - Channel blocked?
  - Channel cutoff by railroad grade
  - Channel cutoff by railroad grade?
  - Channel (tributary) cutoff by railroad grade
  - Culvert
  - Diversion
  - Diversion?
  - Ford
  - Grade control
  - Log structure
  - Rock spur
  - Rock spur?
  - Structure
  - Weir

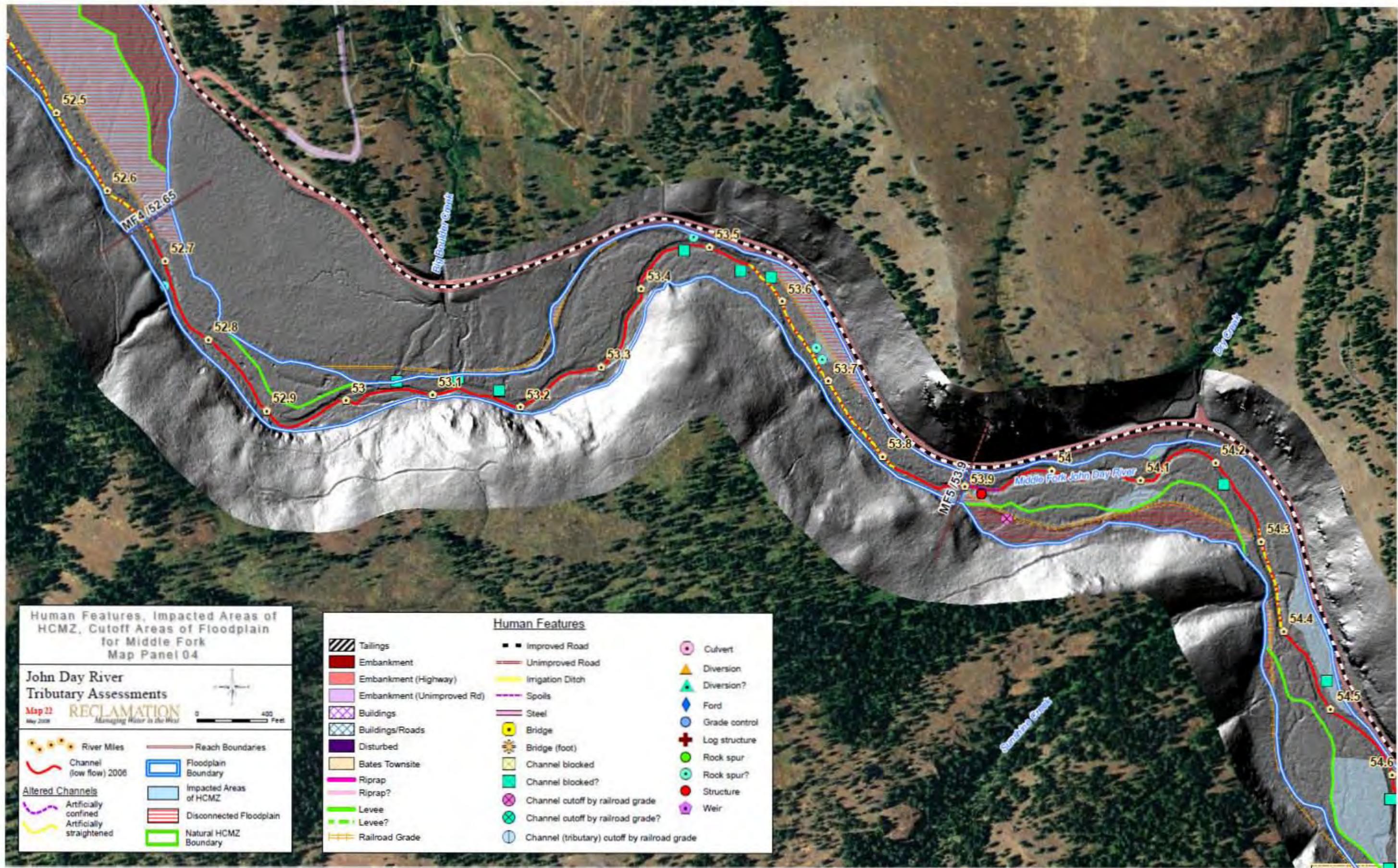


Human Features, Impacted Areas of HCMZ, Cutoff Areas of Floodplain for Middle Fork  
Map Panel 03

**John Day River**  
Tributary Assessments  
Map 21  
May 2008  
RECLAMATION  
Managing Water in the West

- River Miles
- Channel (low flow) 2006
- Artificially confined
- Artificially straightened
- Reach Boundaries
- Floodplain Boundary
- Impacted Areas of HCMZ
- Disconnected Floodplain
- Natural HCMZ Boundary

- Human Features**
- Improved Road
  - Unimproved Road
  - Irrigation Ditch
  - Spoils
  - Steel
  - Bridge
  - Bridge (foot)
  - Channel blocked
  - Channel blocked?
  - Channel cutoff by railroad grade
  - Channel cutoff by railroad grade?
  - Channel (tributary) cutoff by railroad grade
  - Buildings
  - Buildings/Roads
  - Disturbed
  - Bates Townsite
  - Riprap
  - Riprap?
  - Levee
  - Levee?
  - Railroad Grade
  - Culvert
  - Diversion
  - Diversion?
  - Ford
  - Grade control
  - Log structure
  - Rock spur
  - Rock spur?
  - Structure
  - Weir



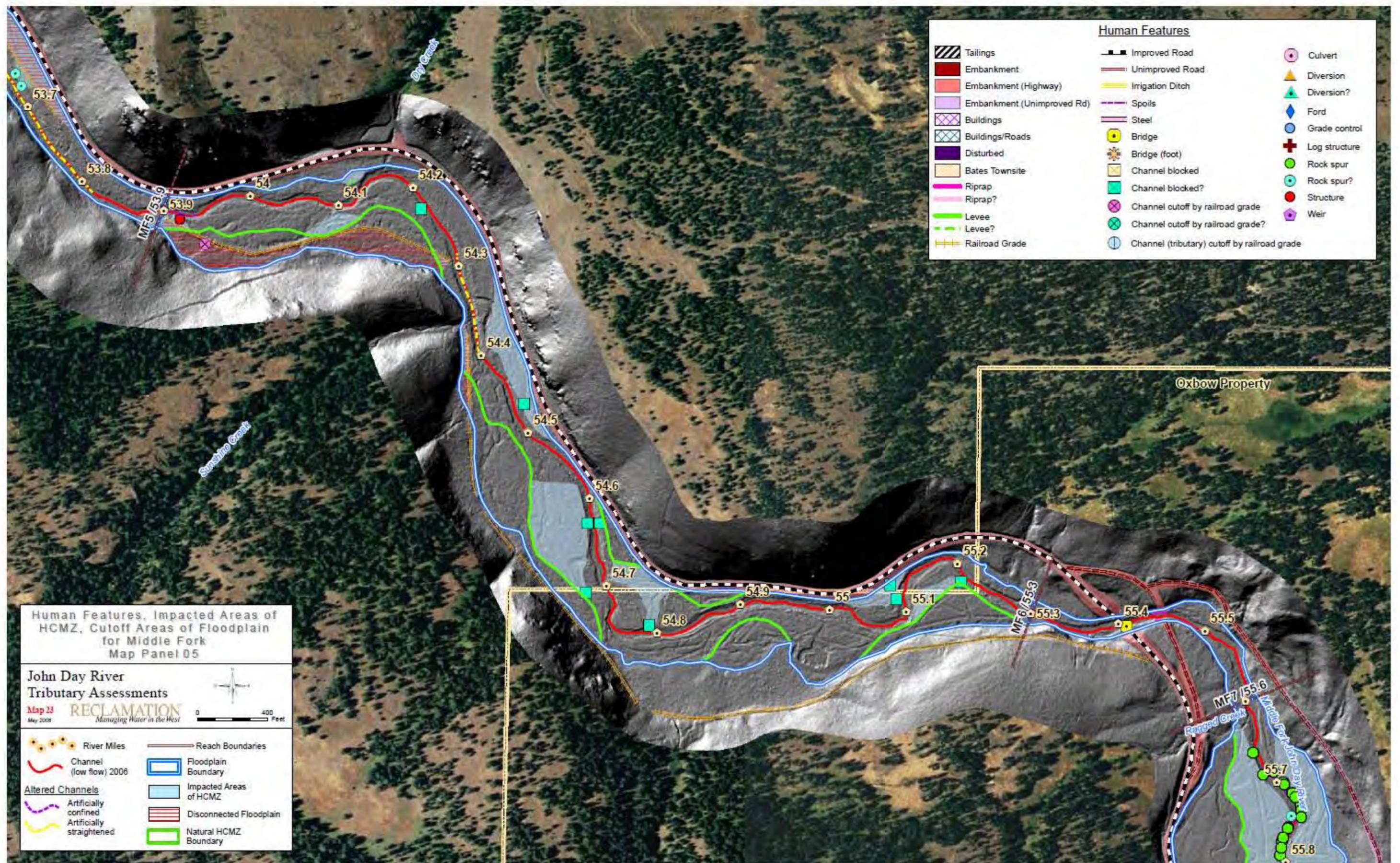
Human Features, Impacted Areas of HCMZ, Cutoff Areas of Floodplain for Middle Fork  
Map Panel 04

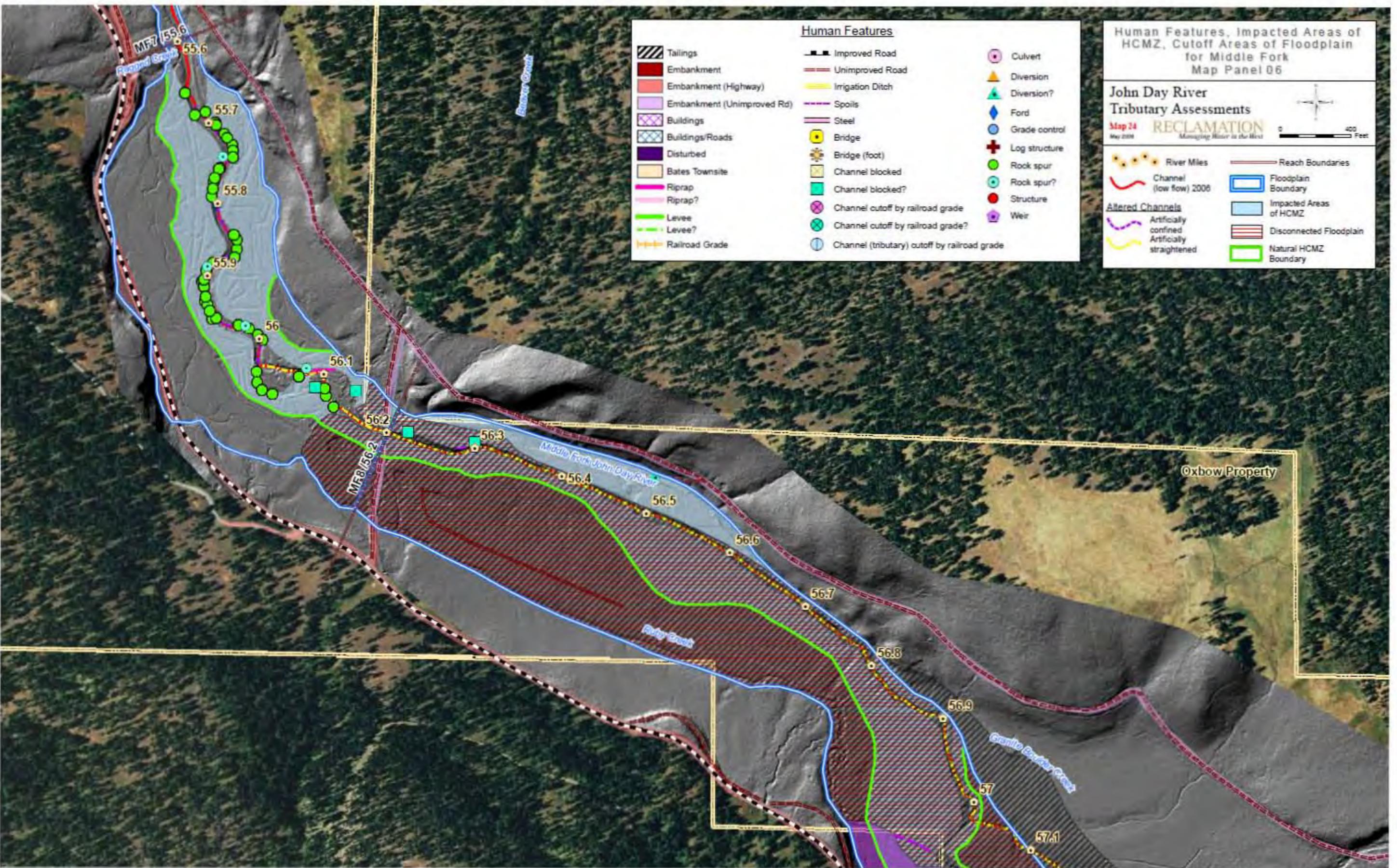
**John Day River  
Tributary Assessments**  
Map 22  
May 2008  
RECLAMATION  
Managing Water in the West

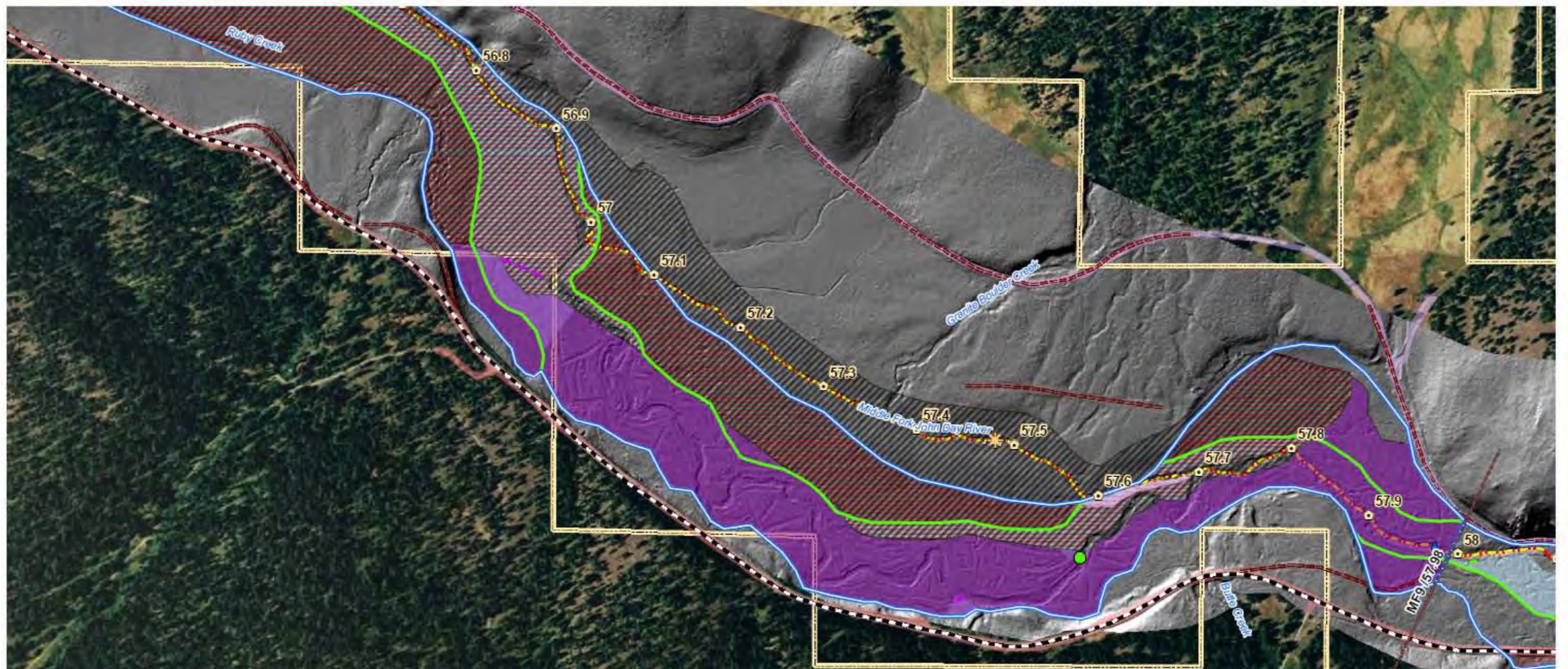
- River Miles
- Channel (low flow) 2006
- Artificially confined
- Artificially straightened
- Reach Boundaries
- Floodplain Boundary
- Impacted Areas of HCMZ
- Disconnected Floodplain
- Natural HCMZ Boundary

- Human Features**
- Improved Road
  - Unimproved Road
  - Irrigation Ditch
  - Spoils
  - Steel
  - Bridge
  - Bridge (foot)
  - Channel blocked
  - Channel blocked?
  - Channel cutoff by railroad grade
  - Channel cutoff by railroad grade?
  - Channel (tributary) cutoff by railroad grade
  - Culvert
  - Diversion
  - Diversion?
  - Ford
  - Grade control
  - Log structure
  - Rock spur
  - Rock spur?
  - Structure
  - Weir

- Tailings
- Embankment
- Embankment (Highway)
- Embankment (Unimproved Rd)
- Buildings
- Buildings/Roads
- Disturbed
- Bates Townsite
- Riprap
- Riprap?
- Levee
- Levee?
- Railroad Grade







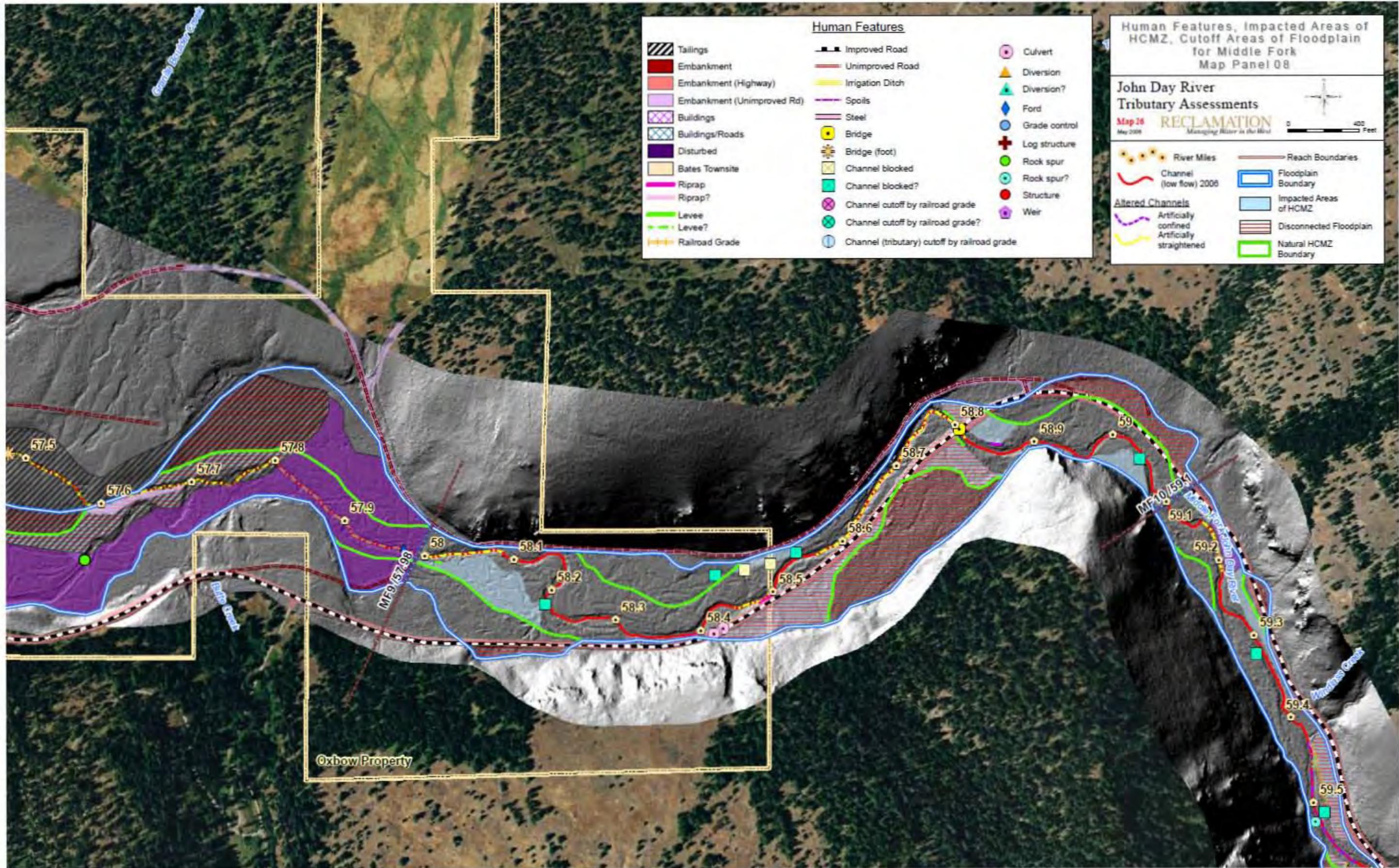
Human Features, Impacted Areas of HCMZ, Cutoff Areas of Floodplain for Middle Fork  
Map Panel 07

**John Day River**  
Tributary Assessments  
Map 25  
May 2008  
RECLAMATION  
Managing Water in the West

- River Miles
- Channel (low flow) 2006
- Altered Channels**
  - Artificially confined
  - Artificially straightened
- Reach Boundaries
- Floodplain Boundary
- Impacted Areas of HCMZ
- Disconnected Floodplain
- Natural HCMZ Boundary

- Human Features**
- Tailings
  - Embankment
  - Embankment (Highway)
  - Embankment (Unimproved Rd)
  - Buildings
  - Buildings/Roads
  - Disturbed
  - Bates Townsite
  - Riprap
  - Riprap?
  - Levee
  - Levee?
  - Railroad Grade
  - Improved Road
  - Unimproved Road
  - Irrigation Ditch
  - Spoils
  - Steel
  - Bridge
  - Bridge (foot)
  - Channel blocked
  - Channel blocked?
  - Channel cutoff by railroad grade
  - Channel cutoff by railroad grade?
  - Channel (tributary) cutoff by railroad grade
  - Culvert
  - Diversion
  - Diversion?
  - Ford
  - Grade control
  - Log structure
  - Rock spur
  - Rock spur?
  - Structure
  - Weir

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Human Features					
	Tailings		Improved Road		Culvert
	Embankment		Unimproved Road		Diversion
	Embankment (Highway)		Irrigation Ditch		Diversion?
	Embankment (Unimproved Rd)		Spoils		Ford
	Buildings		Steel		Grade control
	Buildings/Roads		Bridge		Log structure
	Disturbed		Bridge (foot)		Rock spur
	Bates Townsite		Channel blocked		Rock spur?
	Riprap		Channel blocked?		Structure
	Riprap?		Channel cutoff by railroad grade		Weir
	Levee		Channel cutoff by railroad grade?		Channel (tributary) cutoff by railroad grade
	Levee?				
	Railroad Grade				

Human Features, Impacted Areas of HCMZ, Cutoff Areas of Floodplain for Middle Fork  
Map Panel 08

John Day River  
Tributary Assessments

Map 26  
May 2008

RECLAMATION  
Managing Water in the West

0 400 Feet

River Miles

Channel (low flow) 2006

Altered Channels

Artificially confined

Artificially straightened

Reach Boundaries

Floodplain Boundary

Impacted Areas of HCMZ

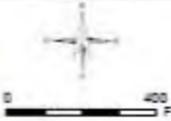
Disconnected Floodplain

Natural HCMZ Boundary

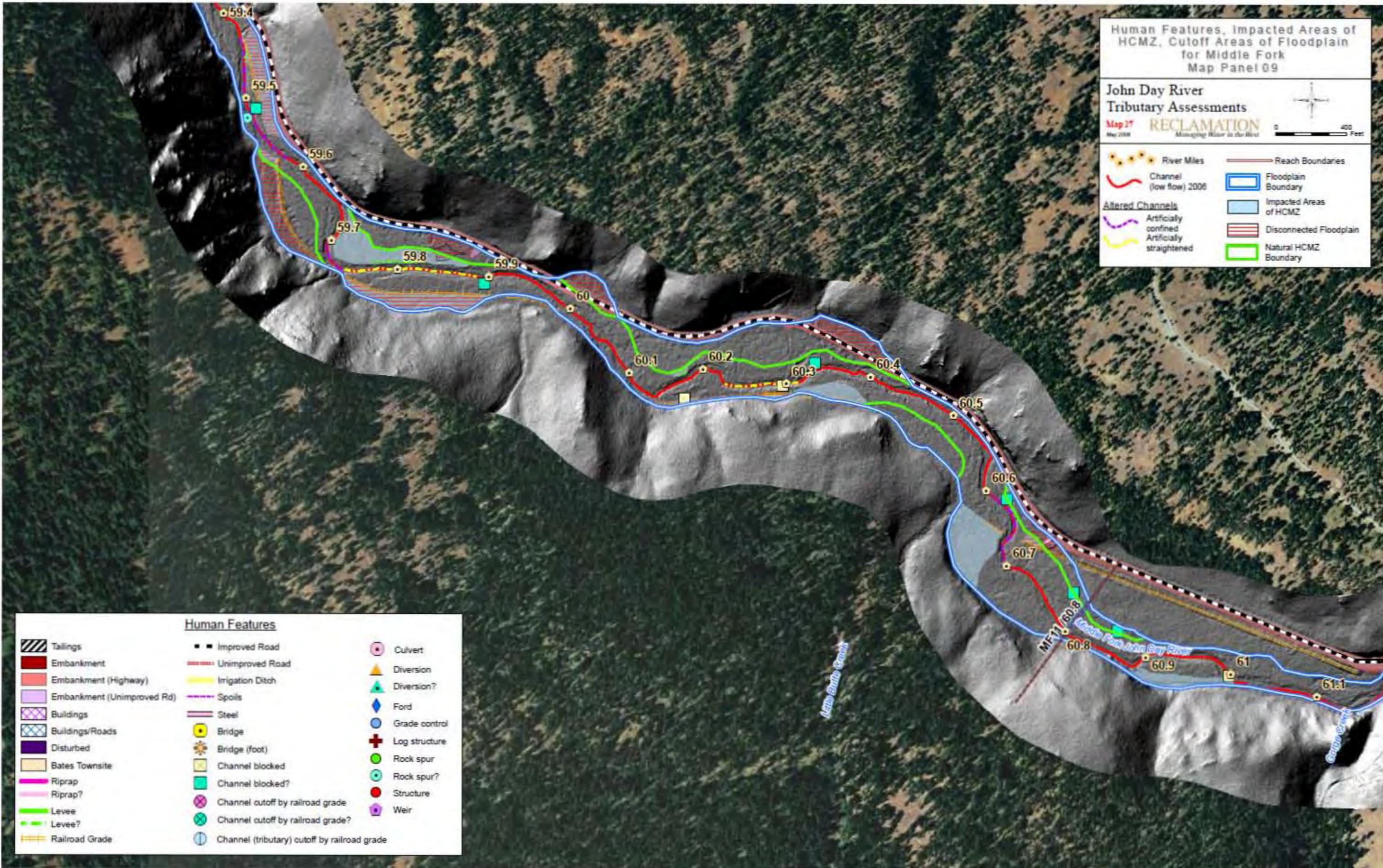
Oxbow Property

Human Features, Impacted Areas of HCMZ, Cutoff Areas of Floodplain for Middle Fork  
Map Panel 09

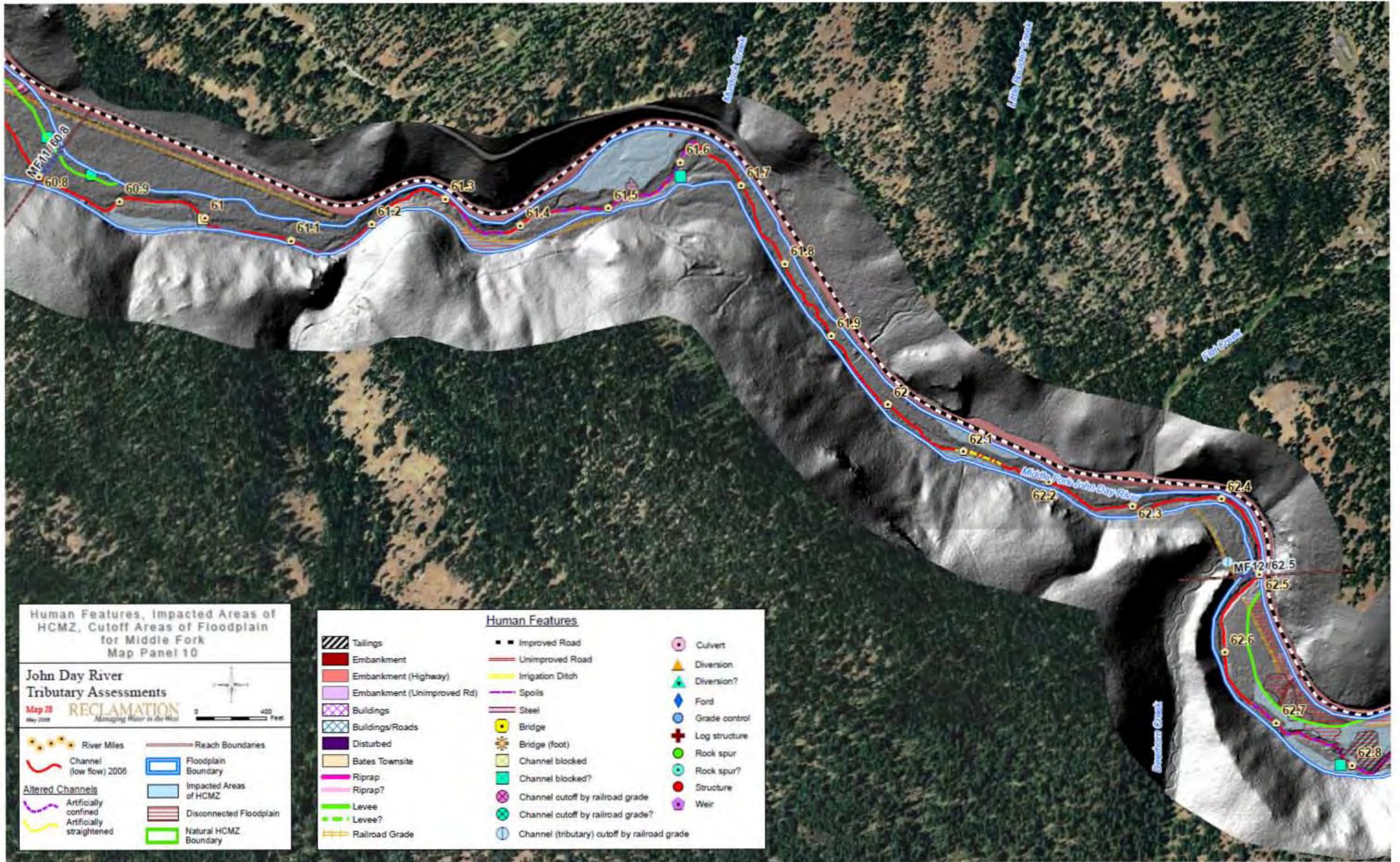
John Day River  
Tributary Assessments  
Map 27 RECLAMATION  
May 2008 Managing Water in the West



- River Miles
- Channel (low flow) 2006
- Floodplain Boundary
- Impacted Areas of HCMZ
- Artificially confined
- Artificially straightened
- Reach Boundaries
- Disconnected Floodplain
- Natural HCMZ Boundary



- Human Features**
- |                            |  |               |
|----------------------------|--|---------------|
| Tailings                   | Improved Road                                | Culvert       |
| Embankment                 | Unimproved Road                              | Diversion     |
| Embankment (Highway)       | Irrigation Ditch                             | Diversion?    |
| Embankment (Unimproved Rd) | Spoils                                       | Ford          |
| Buildings                  | Steel  | Grade control |
| Buildings/Roads            | Bridge                                       | Log structure |
| Disturbed                  | Bridge (foot)                                | Rock spur     |
| Bates Townsite             | Channel blocked                              | Rock spur?    |
| Riprap                     | Channel blocked?                             | Structure     |
| Riprap?                    | Channel cutoff by railroad grade             | Weir          |
| Levee                      | Channel cutoff by railroad grade?            |               |
| Levee?                     | Channel (tributary) cutoff by railroad grade |               |
| Railroad Grade             |  |               |

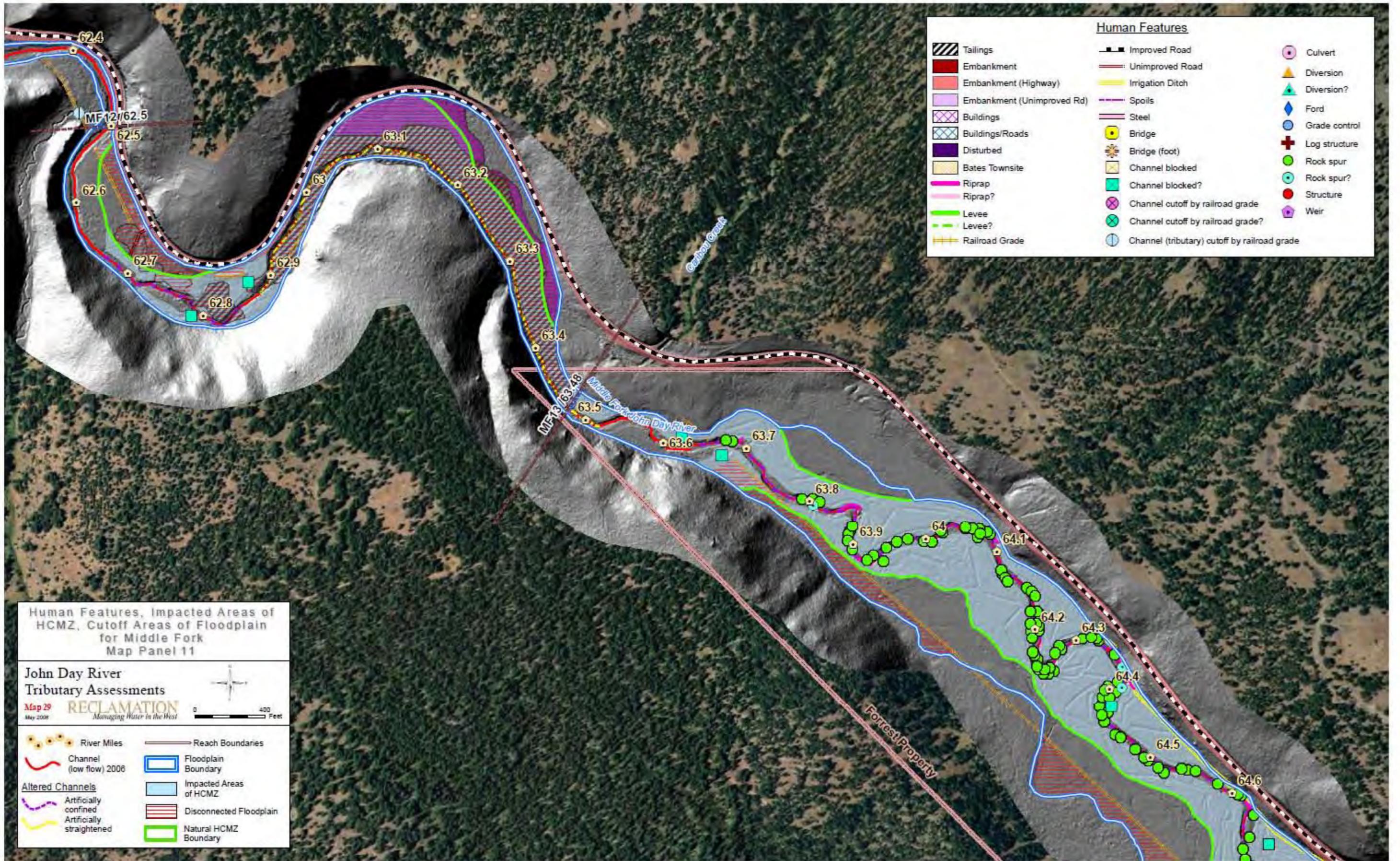


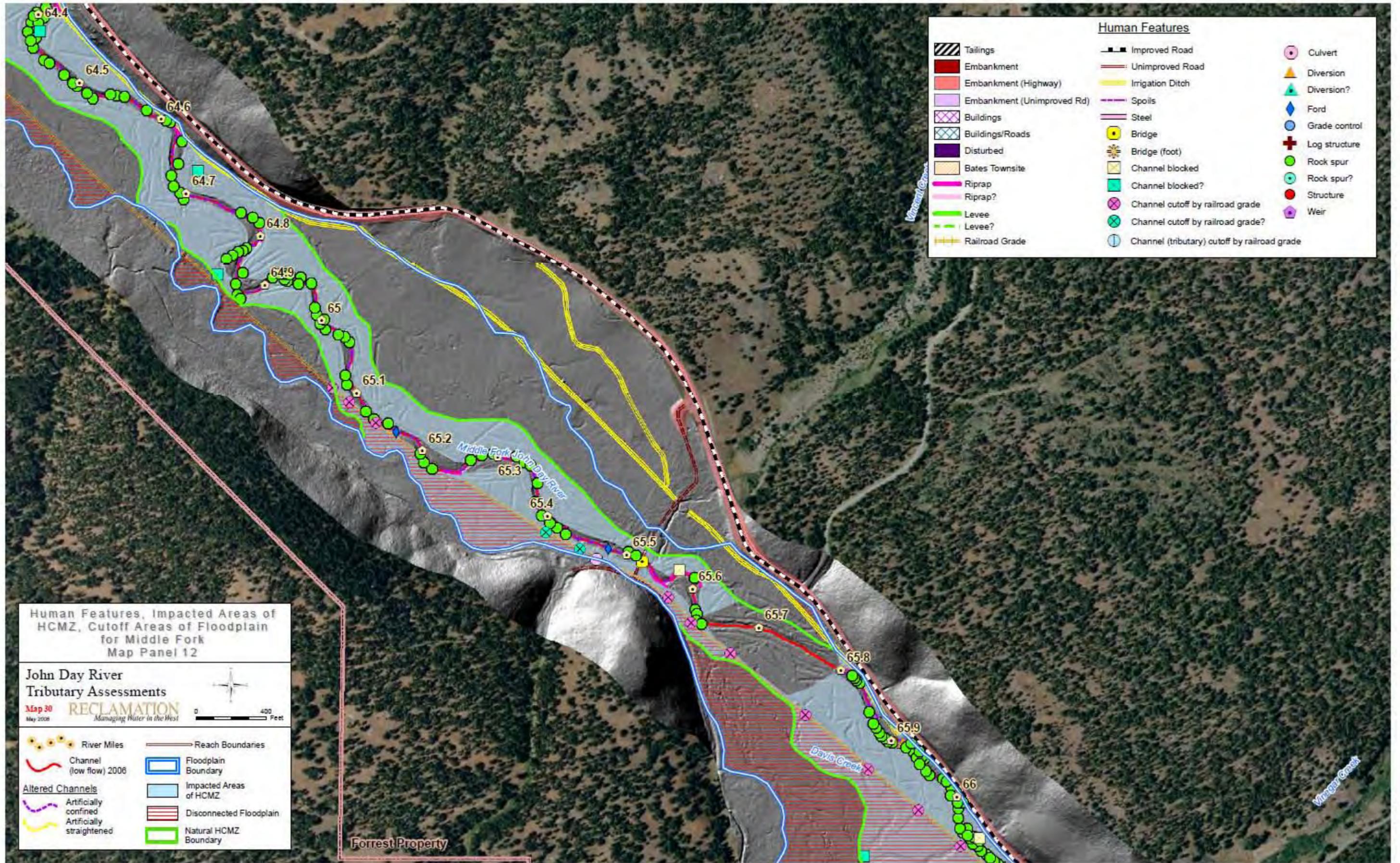
Human Features, Impacted Areas of HCMZ, Cutoff Areas of Floodplain for Middle Fork  
Map Panel 10

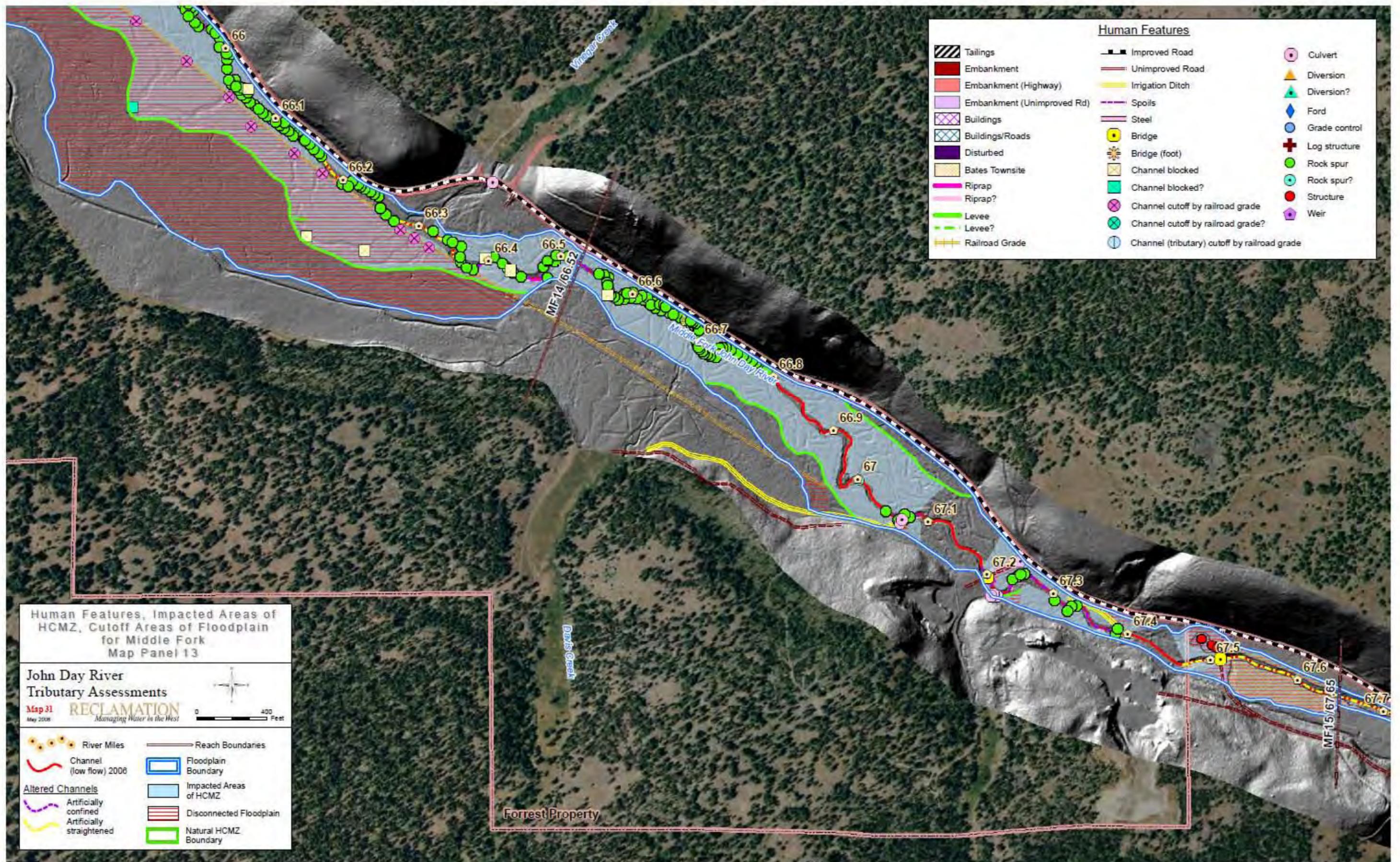
**John Day River Tributary Assessments**  
 Map 28  
 May 2008  
 RECLAMATION  
 Managing Water in the West

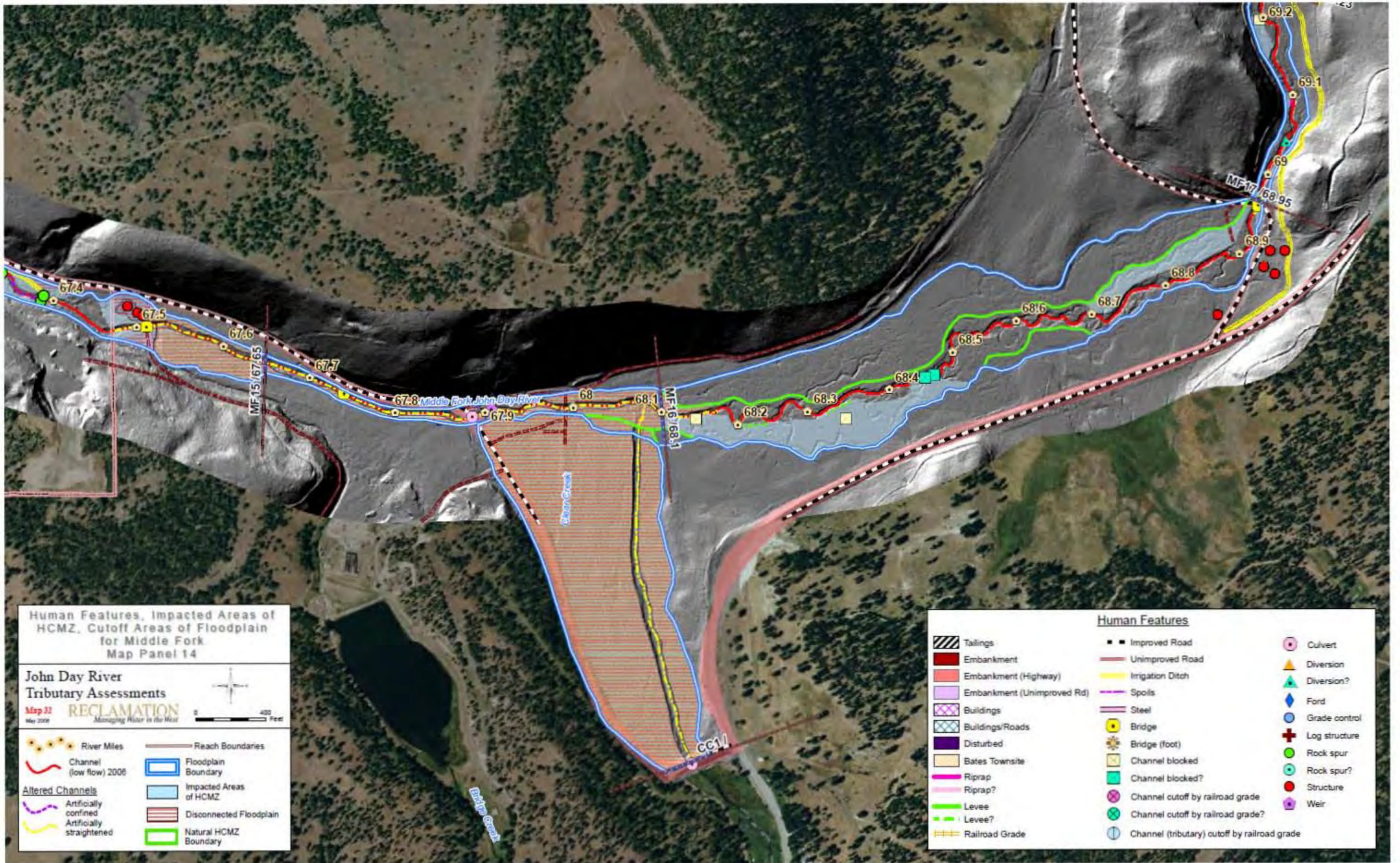
- River Miles
- Channel (low flow) 2006
- Altered Channels**
  - Artificially confined
  - Artificially straightened
- Reach Boundaries
- Floodplain Boundary
- Impacted Areas of HCMZ
- Disconnected Floodplain
- Natural HCMZ Boundary

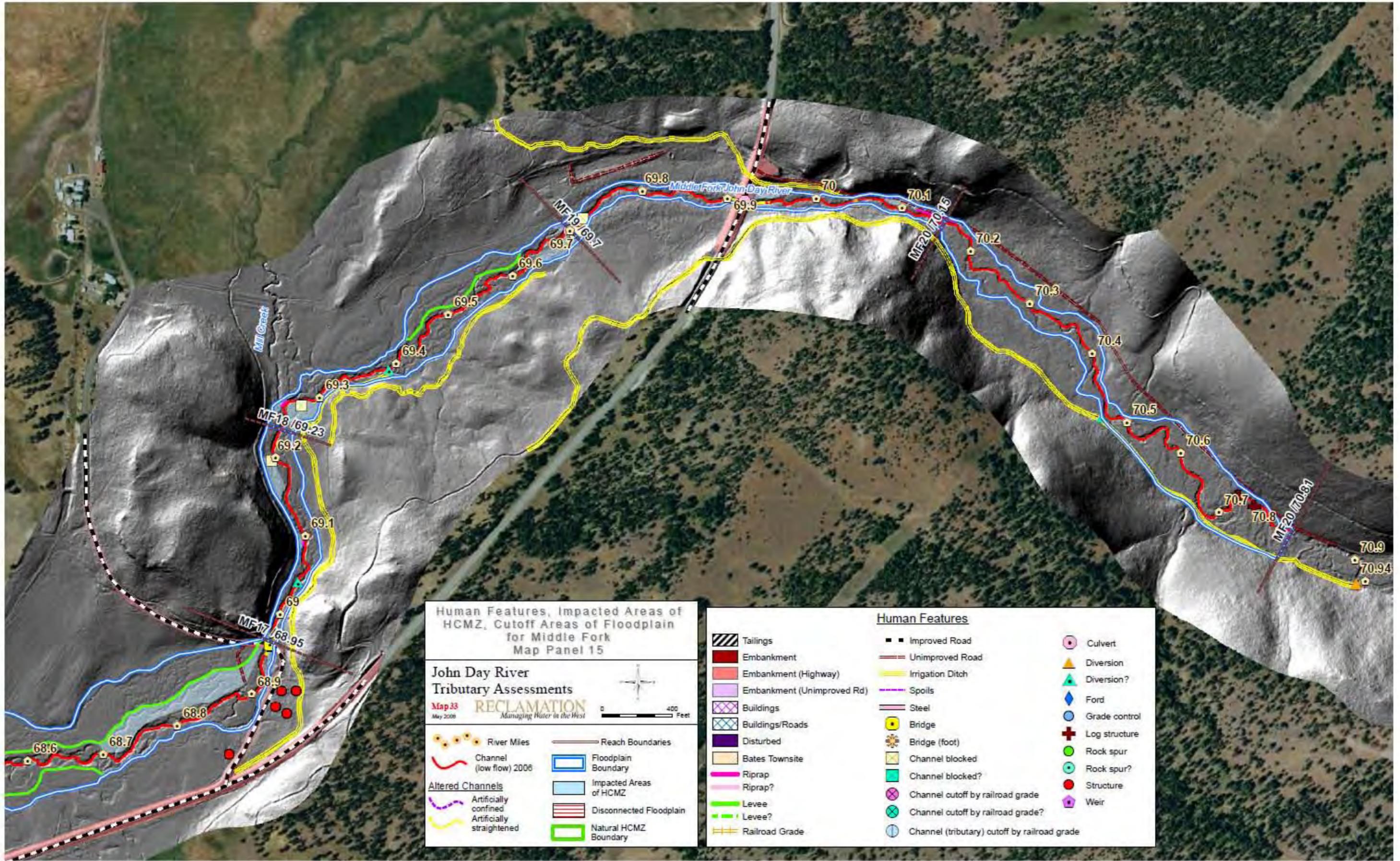
- Human Features**
- Tailings
  - Embankment
  - Embankment (Highway)
  - Embankment (Unimproved Rd)
  - Buildings
  - Buildings/Roads
  - Disturbed
  - Bates Townsite
  - Riprap
  - Riprap?
  - Levee
  - Levee?
  - Railroad Grade
  - Improved Road
  - Unimproved Road
  - Irrigation Ditch
  - Spoils
  - Steel
  - Bridge
  - Bridge (foot)
  - Channel blocked
  - Channel blocked?
  - Channel cutoff by railroad grade
  - Channel cutoff by railroad grade?
  - Channel (tributary) cutoff by railroad grade
  - Culvert
  - Diversion
  - Diversion?
  - Ford
  - Grade control
  - Log structure
  - Rock spur
  - Rock spur?
  - Structure
  - Weir











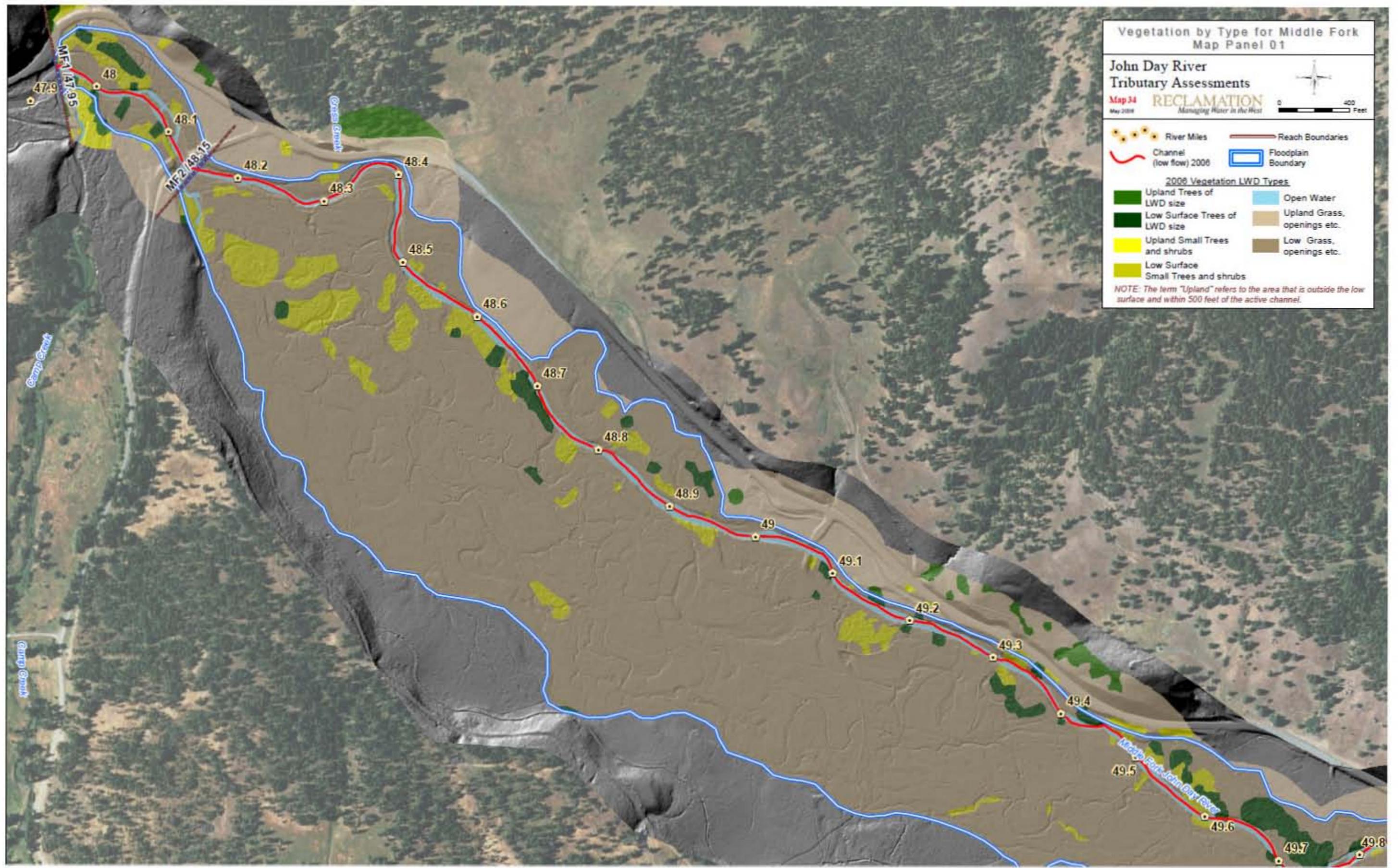
Human Features, Impacted Areas of HCMZ, Cutoff Areas of Floodplain for Middle Fork  
Map Panel 15

**John Day River Tributary Assessments**  
 Map 33  
 May 2008  
 RECLAMATION  
 Managing Water in the West

River Miles  
 Channel (low flow) 2008  
 Altered Channels  
 Artificially confined  
 Artificially straightened  
 Reach Boundaries  
 Floodplain Boundary  
 Impacted Areas of HCMZ  
 Disconnected Floodplain  
 Natural HCMZ Boundary

**Human Features**

Tailings	Improved Road	Culvert
Embankment	Unimproved Road	Diversion
Embankment (Highway)	Irrigation Ditch	Diversion?
Embankment (Unimproved Rd)	Spoils	Ford
Buildings	Steel	Grade control
Buildings/Roads	Bridge	Log structure
Disturbed	Bridge (foot)	Rock spur
Bates Townsite	Channel blocked	Rock spur?
Riprap	Channel blocked?	Structure
Riprap?	Channel cutoff by railroad grade	Weir
Levee	Channel cutoff by railroad grade?	
Levee?	Channel (tributary) cutoff by railroad grade	
Railroad Grade		



**Vegetation by Type for Middle Fork  
Map Panel 01**

**John Day River  
Tributary Assessments**

Map 34 RECLAMATION  
May 2008 Managing Water in the West

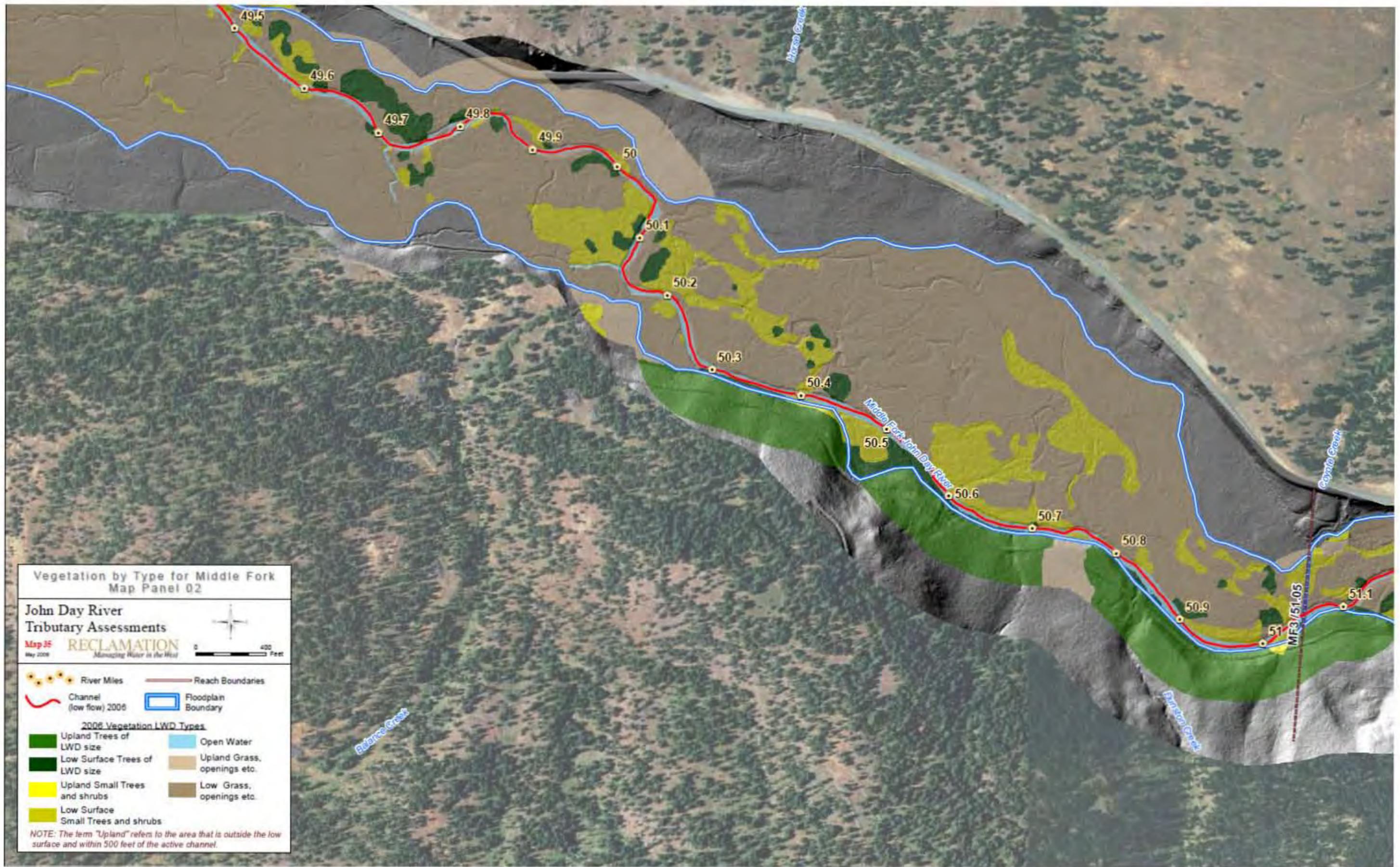
0 400 Feet

●●●● River Miles       Reach Boundaries  
~ Channel (low flow) 2006       Floodplain Boundary

**2006 Vegetation LWD Types**

<span style="display: inline-block; width: 15px; height: 15px; background-color: #008000; border: 1px solid black;"></span> Upland Trees of LWD size	<span style="display: inline-block; width: 15px; height: 15px; background-color: #000080; border: 1px solid black;"></span> Open Water
<span style="display: inline-block; width: 15px; height: 15px; background-color: #006400; border: 1px solid black;"></span> Low Surface Trees of LWD size	<span style="display: inline-block; width: 15px; height: 15px; background-color: #D2B48C; border: 1px solid black;"></span> Upland Grass, openings etc.
<span style="display: inline-block; width: 15px; height: 15px; background-color: #FFFF00; border: 1px solid black;"></span> Upland Small Trees and shrubs	<span style="display: inline-block; width: 15px; height: 15px; background-color: #8B4513; border: 1px solid black;"></span> Low Grass, openings etc.
<span style="display: inline-block; width: 15px; height: 15px; background-color: #9ACD32; border: 1px solid black;"></span> Low Surface Small Trees and shrubs	

*NOTE: The term "Upland" refers to the area that is outside the low surface and within 500 feet of the active channel.*

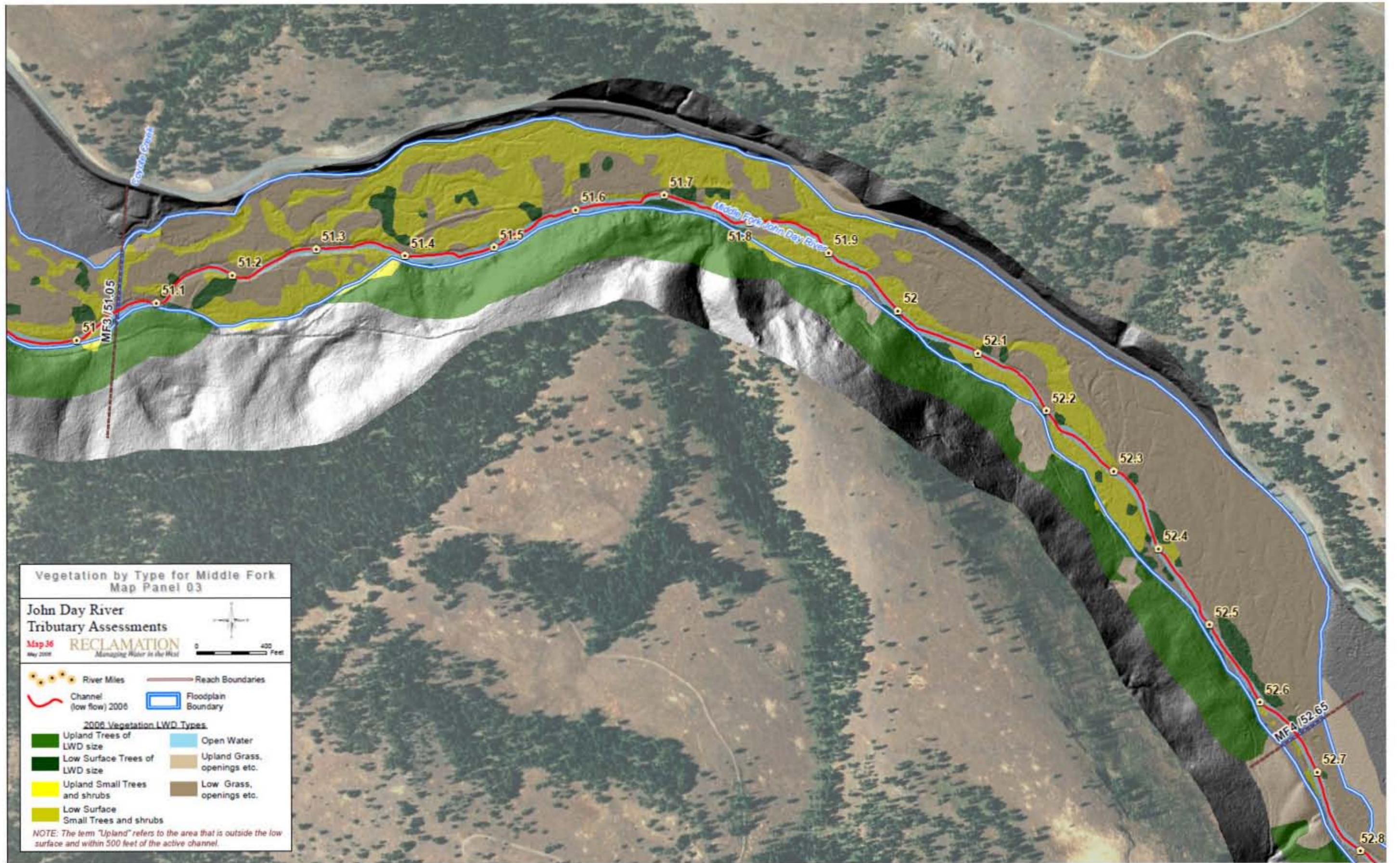


Vegetation by Type for Middle Fork  
Map Panel 02

John Day River  
Tributary Assessments  
Map 35 RECLAMATION  
May 2008 Managing Water in the West

- River Miles
  - Reach Boundaries
  - Channel (low flow) 2008
  - Floodplain Boundary
- 2008 Vegetation LWD Types**
- Upland Trees of LWD size
  - Low Surface Trees of LWD size
  - Upland Small Trees and shrubs
  - Low Surface Small Trees and shrubs
  - Open Water
  - Upland Grass, openings etc.
  - Low Grass, openings etc.

NOTE: The term "Upland" refers to the area that is outside the low surface and within 500 feet of the active channel.



Vegetation by Type for Middle Fork  
Map Panel 03

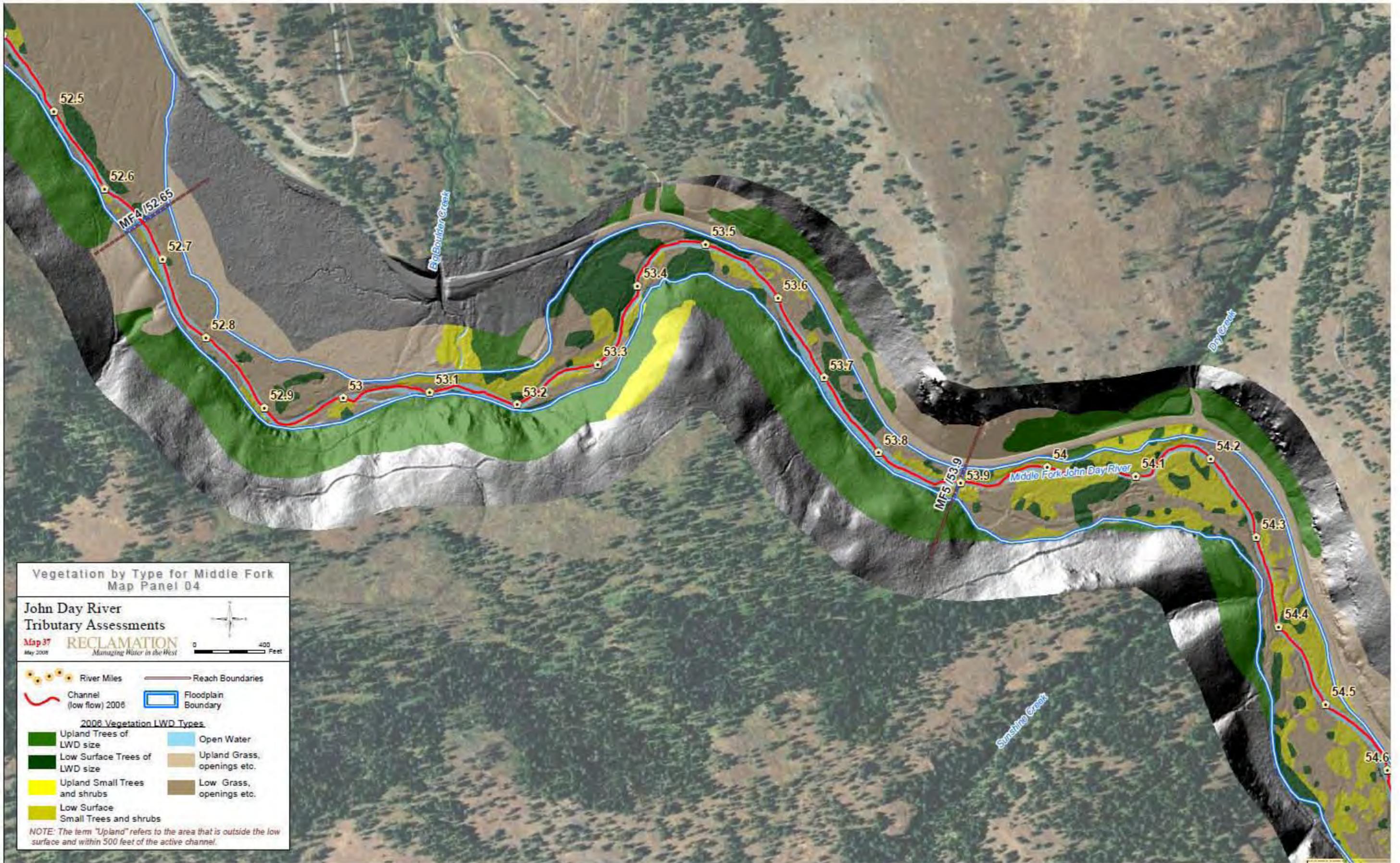
John Day River  
Tributary Assessments

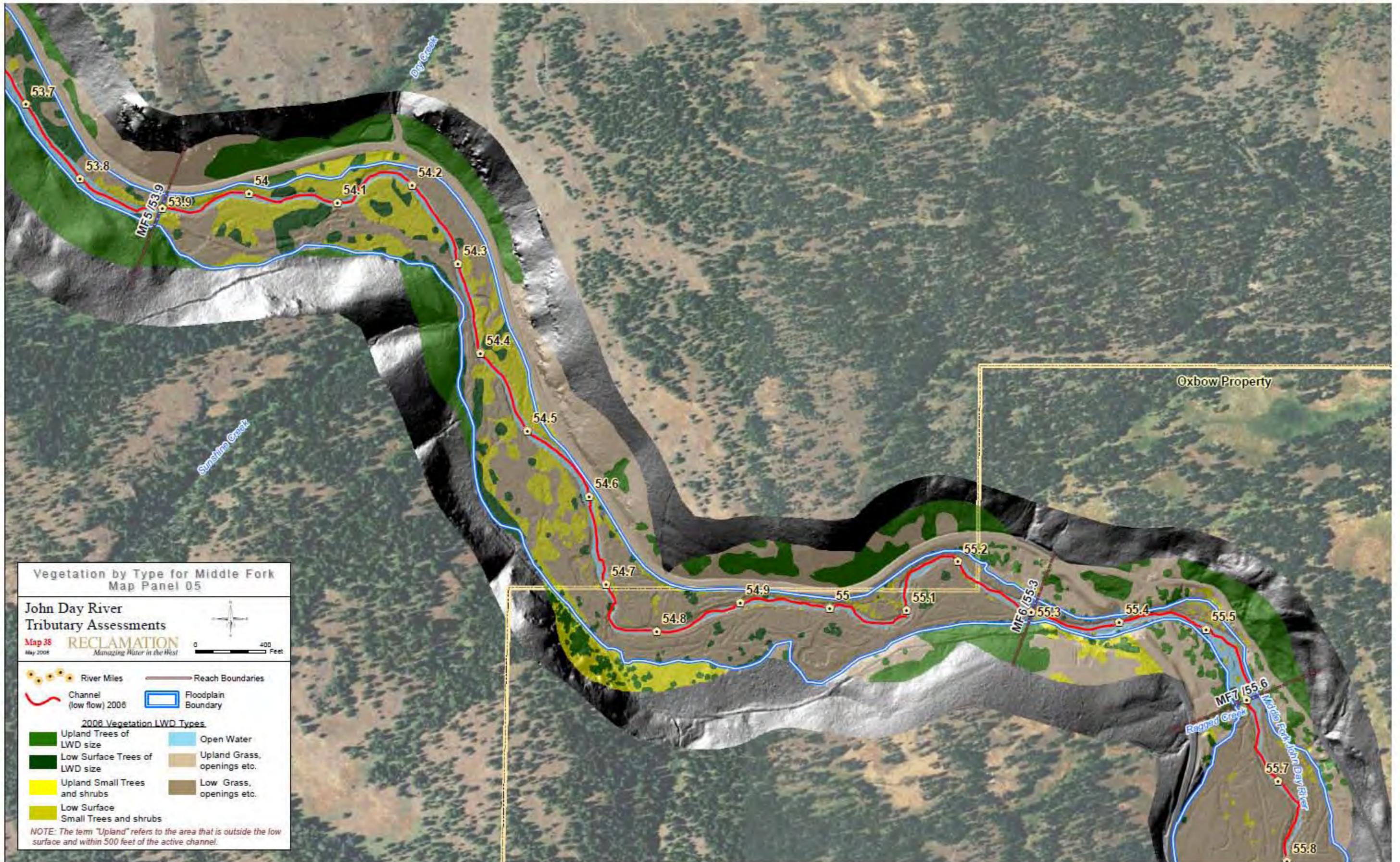
Map 36 RECLAMATION  
May 2008 Managing Water in the West



- River Miles
  - Channel (low flow) 2006
  - Floodplain Boundary
  - Reach Boundaries
- 2006 Vegetation LWD Types**
- Upland Trees of LWD size
  - Low Surface Trees of LWD size
  - Upland Small Trees and shrubs
  - Low Surface Small Trees and shrubs
  - Open Water
  - Upland Grass, openings etc.
  - Low Grass, openings etc.

NOTE: The term "Upland" refers to the area that is outside the low surface and within 500 feet of the active channel.





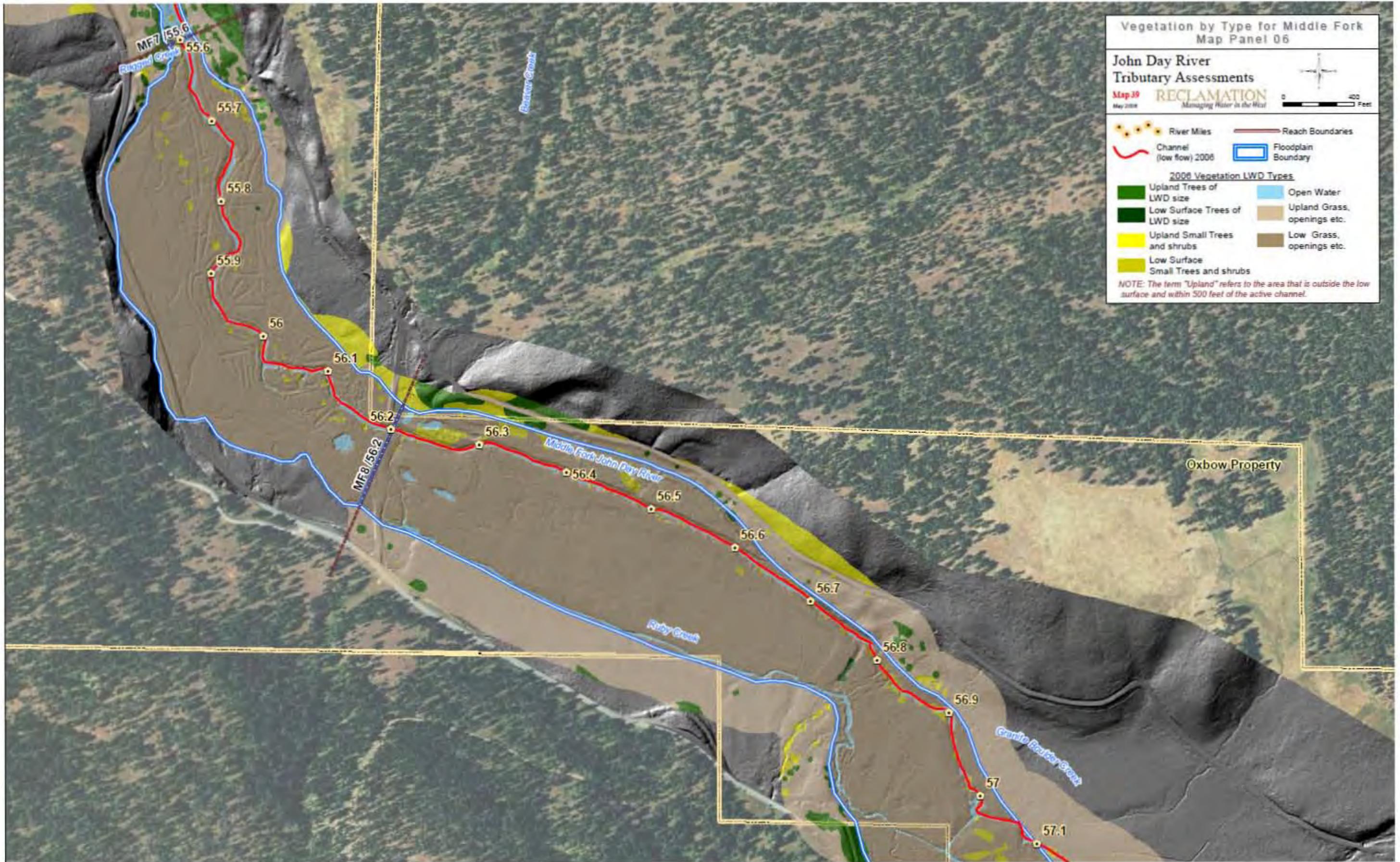
Vegetation by Type for Middle Fork  
Map Panel 05

John Day River  
Tributary Assessments  
Map 38  
May 2008  
RECLAMATION  
Managing Water in the West

- River Miles
  - Channel (low flow) 2008
  - Floodplain Boundary
  - Reach Boundaries
- 2008 Vegetation LWD Types**
- Upland Trees of LWD size
  - Low Surface Trees of LWD size
  - Upland Small Trees and shrubs
  - Low Surface Small Trees and shrubs
  - Open Water
  - Upland Grass, openings etc.
  - Low Grass, openings etc.

NOTE: The term "Upland" refers to the area that is outside the low surface and within 500 feet of the active channel.

Oxbow Property



**Vegetation by Type for Middle Fork  
Map Panel 06**

**John Day River  
Tributary Assessments**

Map 39  
May 2008

**RECLAMATION**  
Managing Water in the West

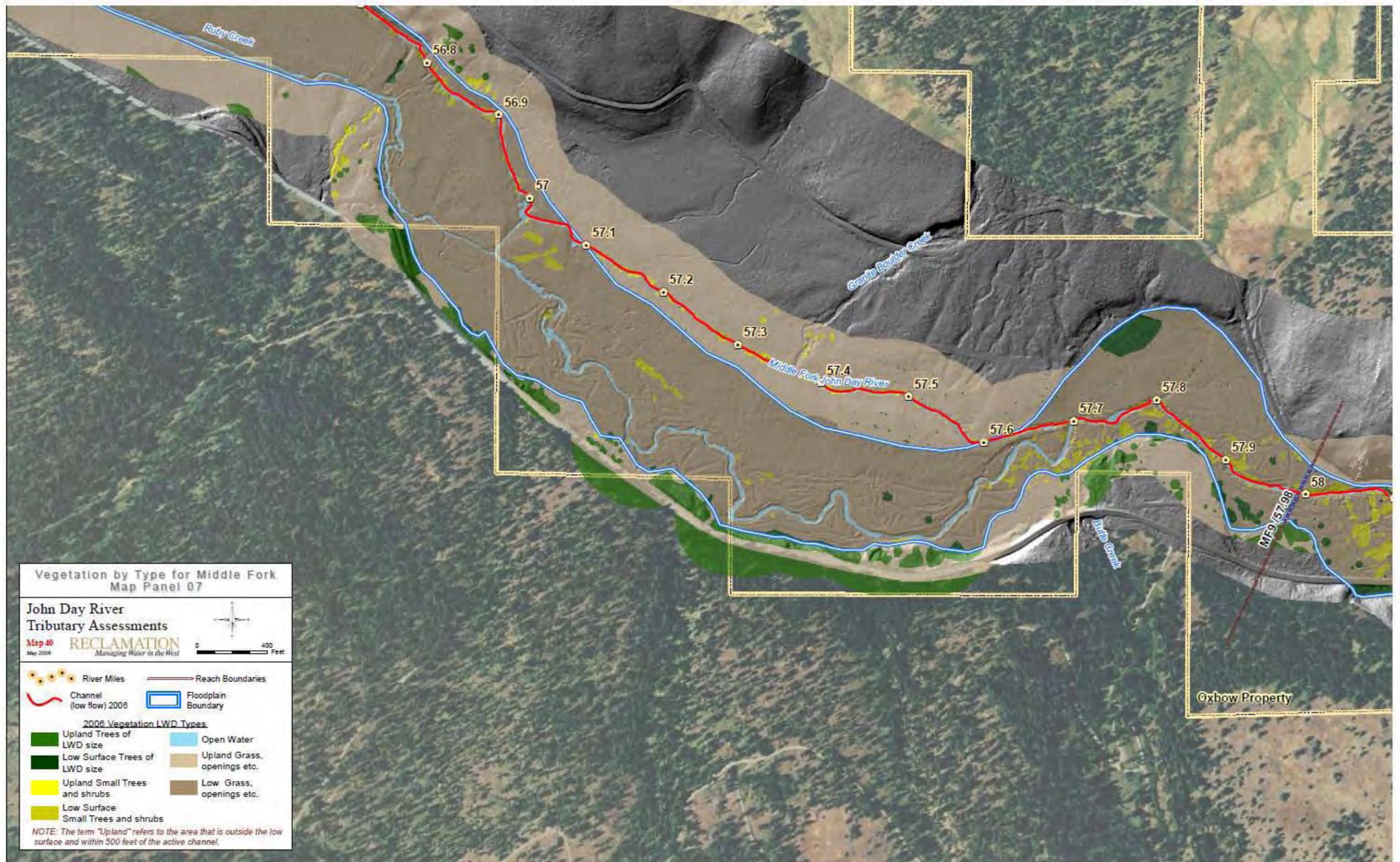
0 400 Feet

●●●● River Miles      Reach Boundaries  
— Channel (low flow) 2006      Floodplain Boundary

**2006 Vegetation LWD Types**

<span style="display: inline-block; width: 15px; height: 10px; background-color: #008000; border: 1px solid black;"></span> Upland Trees of LWD size	<span style="display: inline-block; width: 15px; height: 10px; background-color: #add8e6; border: 1px solid black;"></span> Open Water
<span style="display: inline-block; width: 15px; height: 10px; background-color: #006400; border: 1px solid black;"></span> Low Surface Trees of LWD size	<span style="display: inline-block; width: 15px; height: 10px; background-color: #d2b48c; border: 1px solid black;"></span> Upland Grass, openings etc.
<span style="display: inline-block; width: 15px; height: 10px; background-color: #ffff00; border: 1px solid black;"></span> Upland Small Trees and shrubs	<span style="display: inline-block; width: 15px; height: 10px; background-color: #808080; border: 1px solid black;"></span> Low Grass, openings etc.
<span style="display: inline-block; width: 15px; height: 10px; background-color: #90ee90; border: 1px solid black;"></span> Low Surface Small Trees and shrubs	

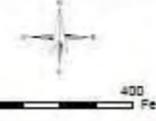
*NOTE: The term "Upland" refers to the area that is outside the low surface and within 500 feet of the active channel.*



Vegetation by Type for Middle Fork  
Map Panel 07

John Day River  
Tributary Assessments

Map 40 RECLAMATION  
May 2008 Managing Water in the West



- River Miles
  - Channel (low flow) 2006
  - Floodplain Boundary
  - Reach Boundaries
- 2006 Vegetation LWD Types**
- Upland Trees of LWD size
  - Low Surface Trees of LWD size
  - Upland Small Trees and shrubs
  - Low Surface Small Trees and shrubs
  - Open Water
  - Upland Grass, openings etc.
  - Low Grass, openings etc.

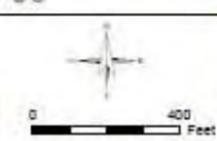
NOTE: The term "Upland" refers to the area that is outside the low surface and within 500 feet of the active channel.

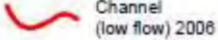
Oxbow Property

Vegetation by Type for Middle Fork  
Map Panel 08

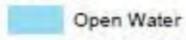
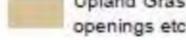
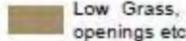
John Day River  
Tributary Assessments

Map 41 RECLAMATION  
May 2008 *Managing Water in the West*

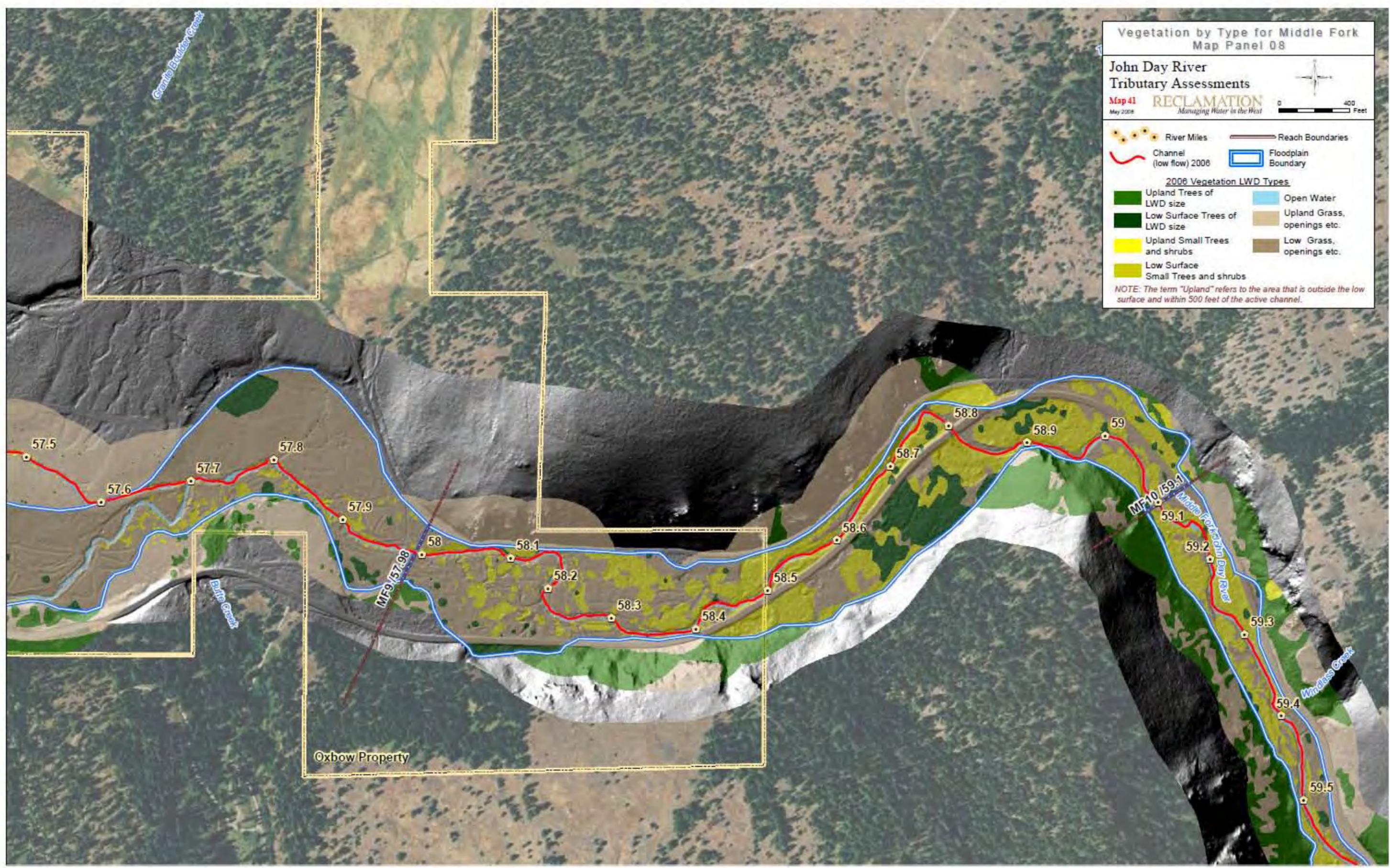


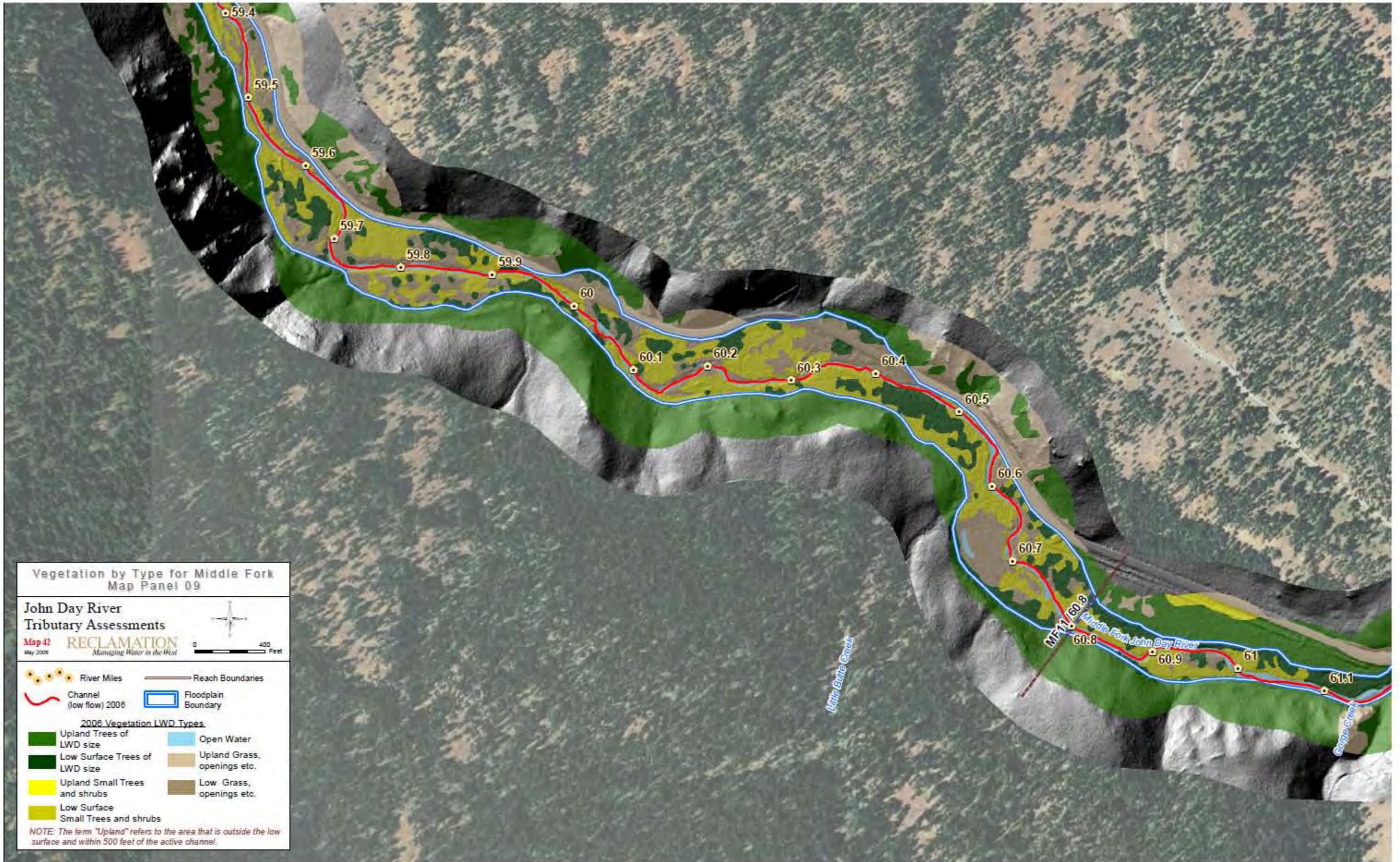
 River Miles  
 Channel (low flow) 2006  
 Reach Boundaries  
 Floodplain Boundary

**2006 Vegetation LWD Types**

 Upland Trees of LWD size	 Open Water
 Low Surface Trees of LWD size	 Upland Grass, openings etc.
 Upland Small Trees and shrubs	 Low Grass, openings etc.
 Low Surface Small Trees and shrubs	

NOTE: The term "Upland" refers to the area that is outside the low surface and within 500 feet of the active channel.





Vegetation by Type for Middle Fork  
Map Panel 09

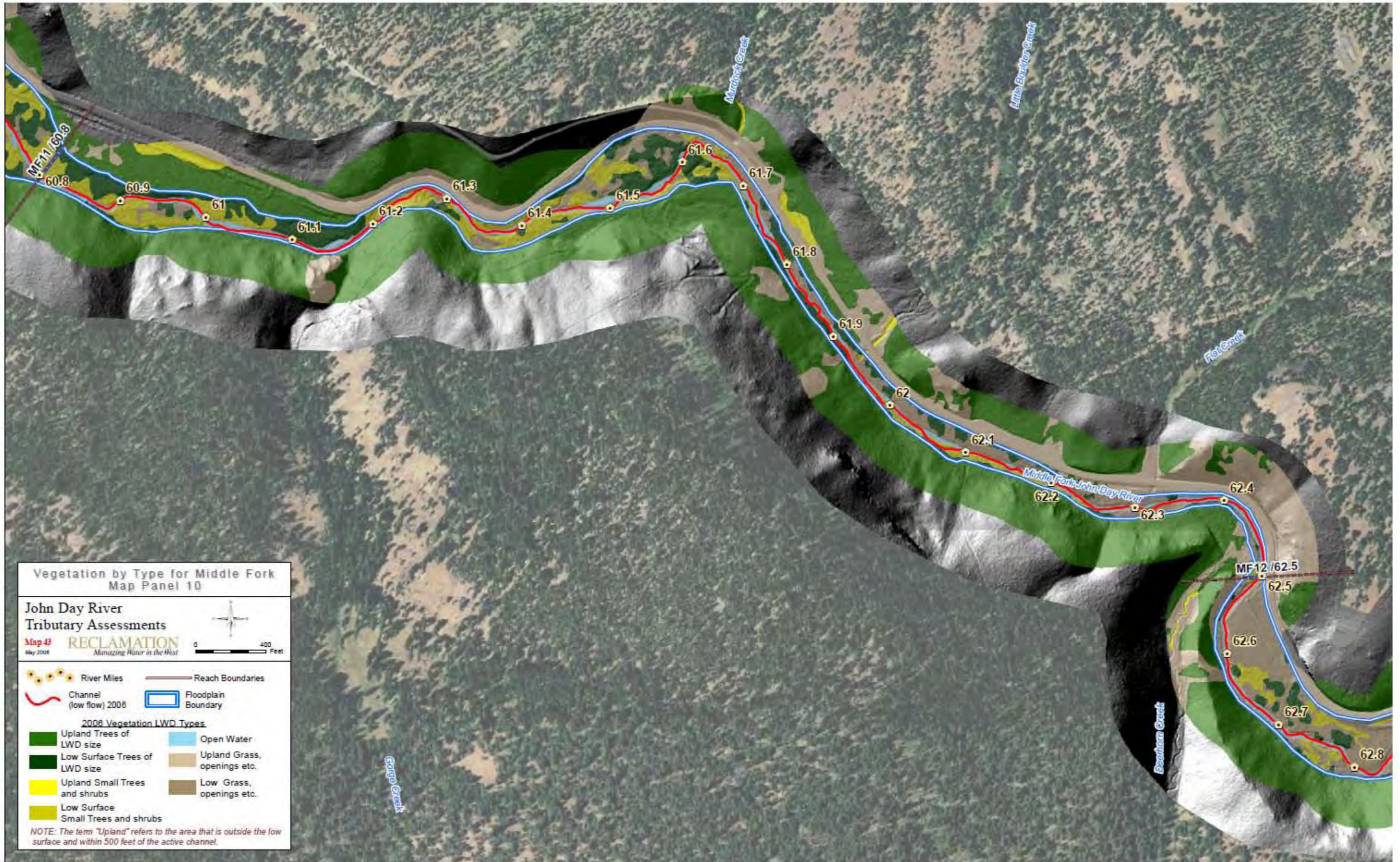
John Day River  
Tributary Assessments

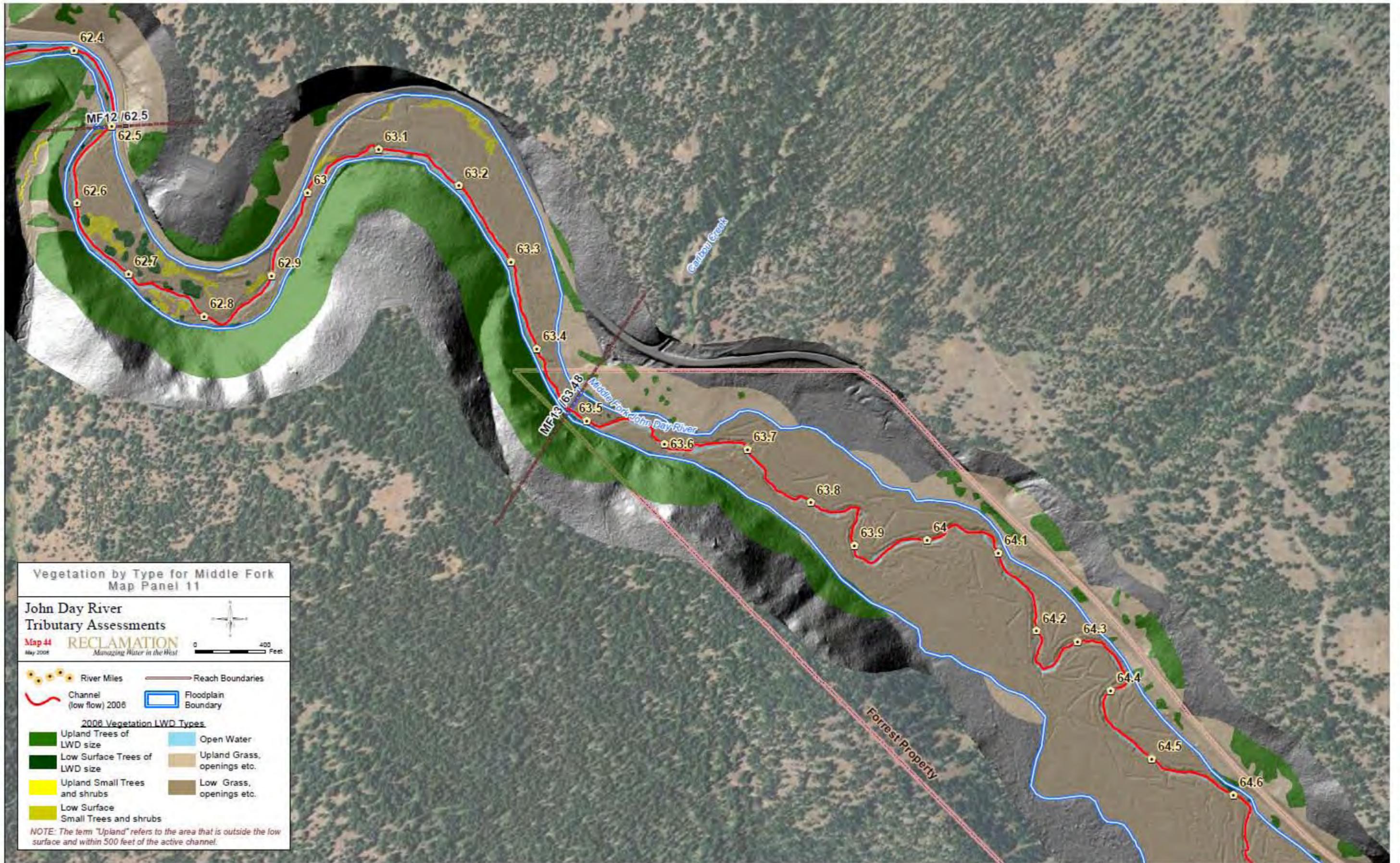
Map 42 RECLAMATION  
May 2008 Managing Water in the West



- River Miles
  - Channel (low flow) 2008
  - Floodplain Boundary
  - Reach Boundaries
- 2008 Vegetation LWD Types**
- Upland Trees of LWD size
  - Low Surface Trees of LWD size
  - Upland Small Trees and shrubs
  - Low Surface Small Trees and shrubs
  - Open Water
  - Upland Grass, openings etc.
  - Low Grass, openings etc.

NOTE: The term "Upland" refers to the area that is outside the low surface and within 500 feet of the active channel.



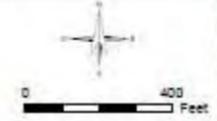


Vegetation by Type for Middle Fork  
Map Panel 12

**John Day River  
Tributary Assessments**

Map 45  
May 2008

**RECLAMATION**  
Managing Water in the West

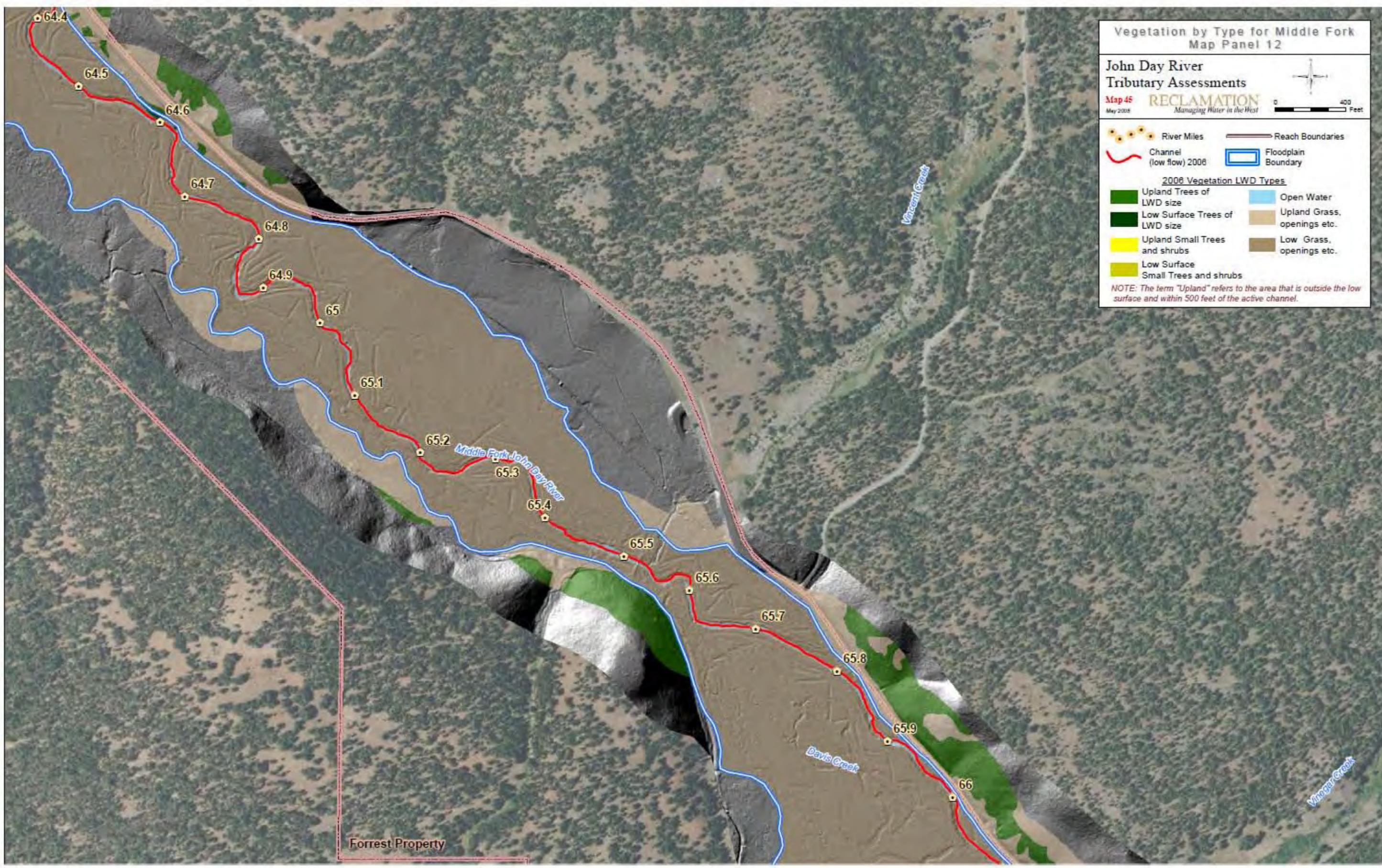


 River Miles  
 Channel (low flow) 2008  
 Reach Boundaries  
 Floodplain Boundary

**2008 Vegetation LWD Types**

 Upland Trees of LWD size	 Open Water
 Low Surface Trees of LWD size	 Upland Grass, openings etc.
 Upland Small Trees and shrubs	 Low Grass, openings etc.
 Low Surface Small Trees and shrubs	

*NOTE: The term "Upland" refers to the area that is outside the low surface and within 500 feet of the active channel.*



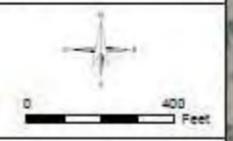
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Vegetation by Type for Middle Fork  
Map Panel 13

John Day River  
Tributary Assessments

Map 46  
May 2008

RECLAMATION  
Managing Water in the West

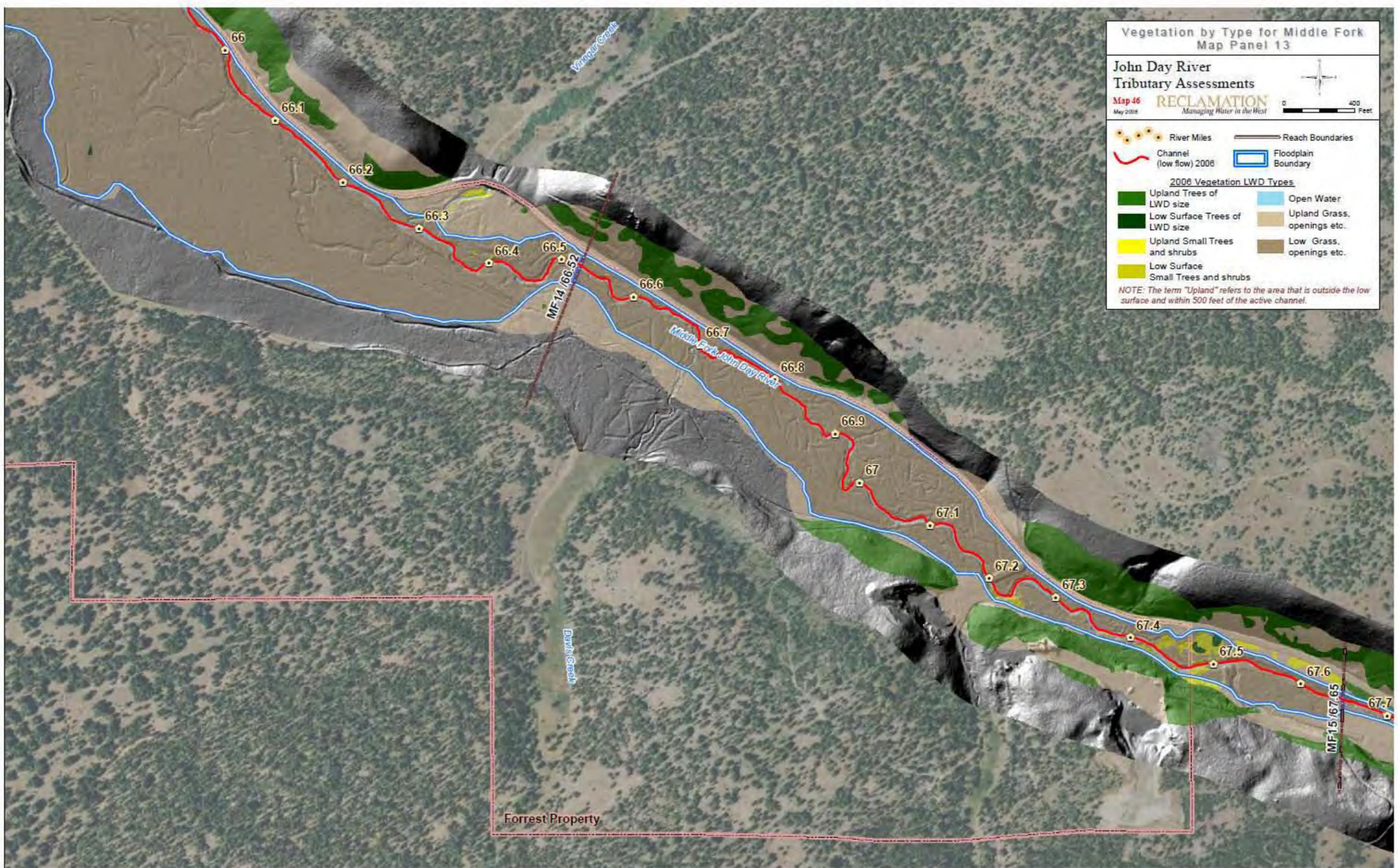


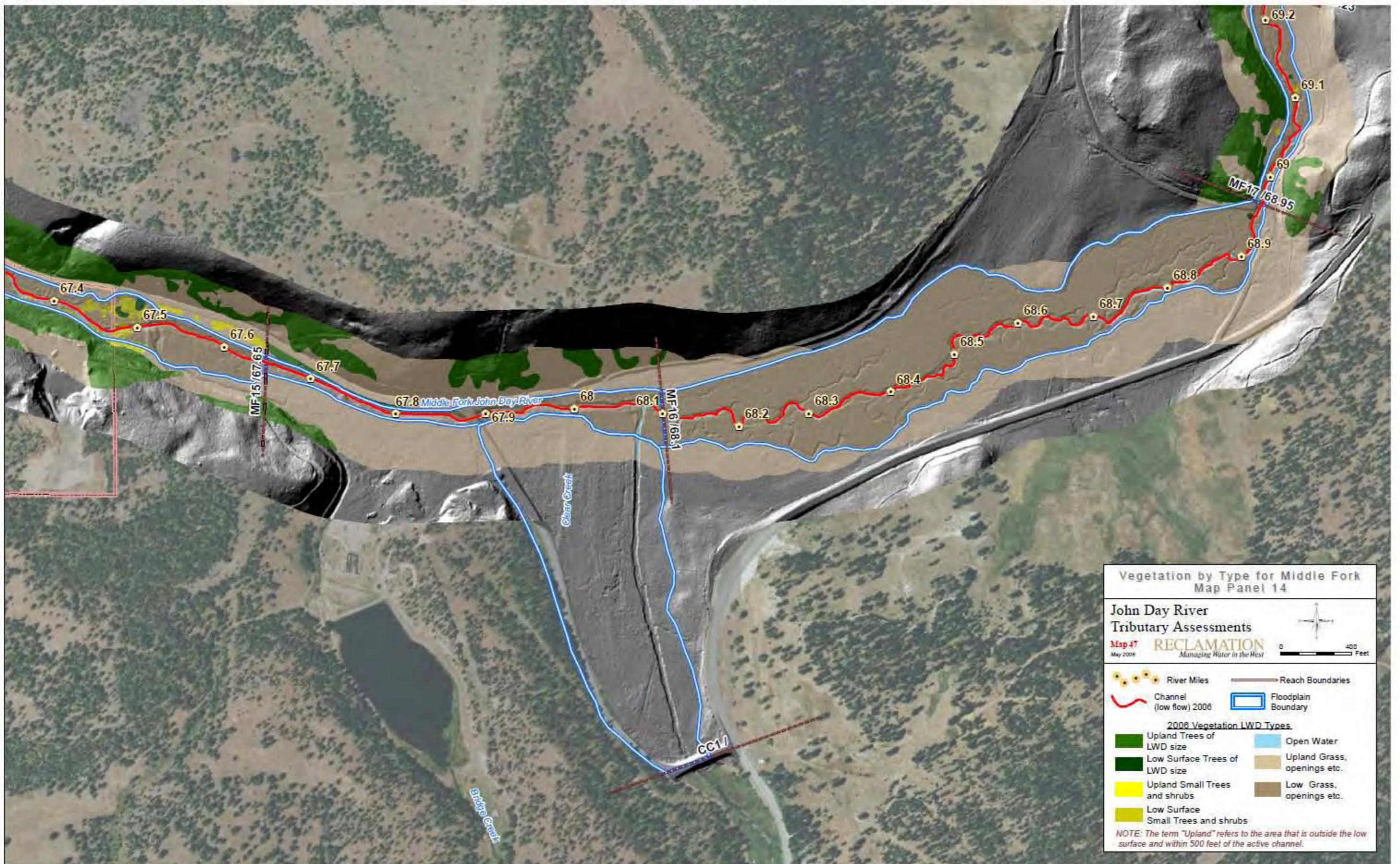
 River Miles  
 Channel (low flow) 2008  
 Floodplain Boundary  
 Reach Boundaries

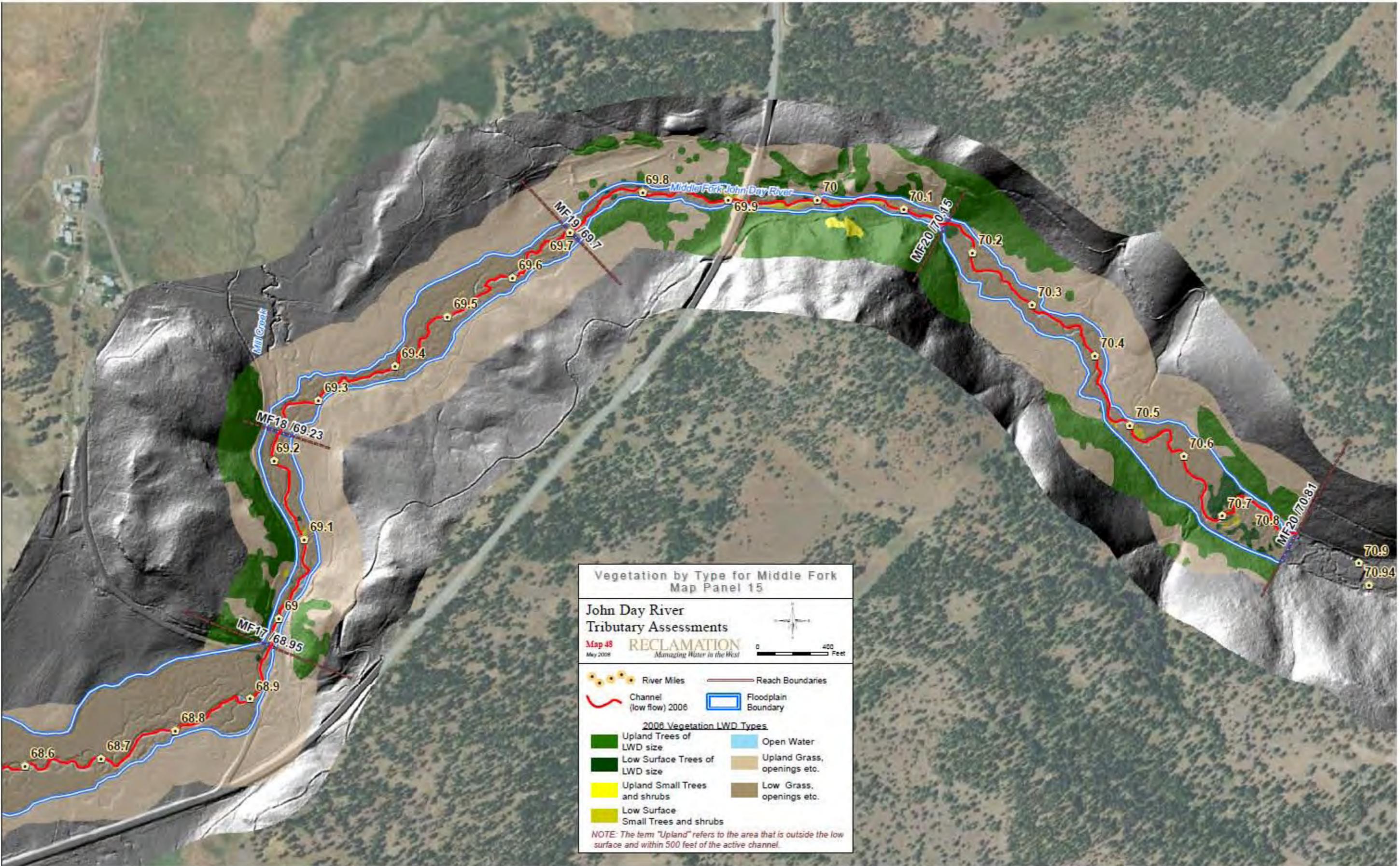
**2008 Vegetation LWD Types**

 Upland Trees of LWD size	 Open Water
 Low Surface Trees of LWD size	 Upland Grass, openings etc.
 Upland Small Trees and shrubs	 Low Grass, openings etc.
 Low Surface Small Trees and shrubs	

NOTE: The term "Upland" refers to the area that is outside the low surface and within 500 feet of the active channel.





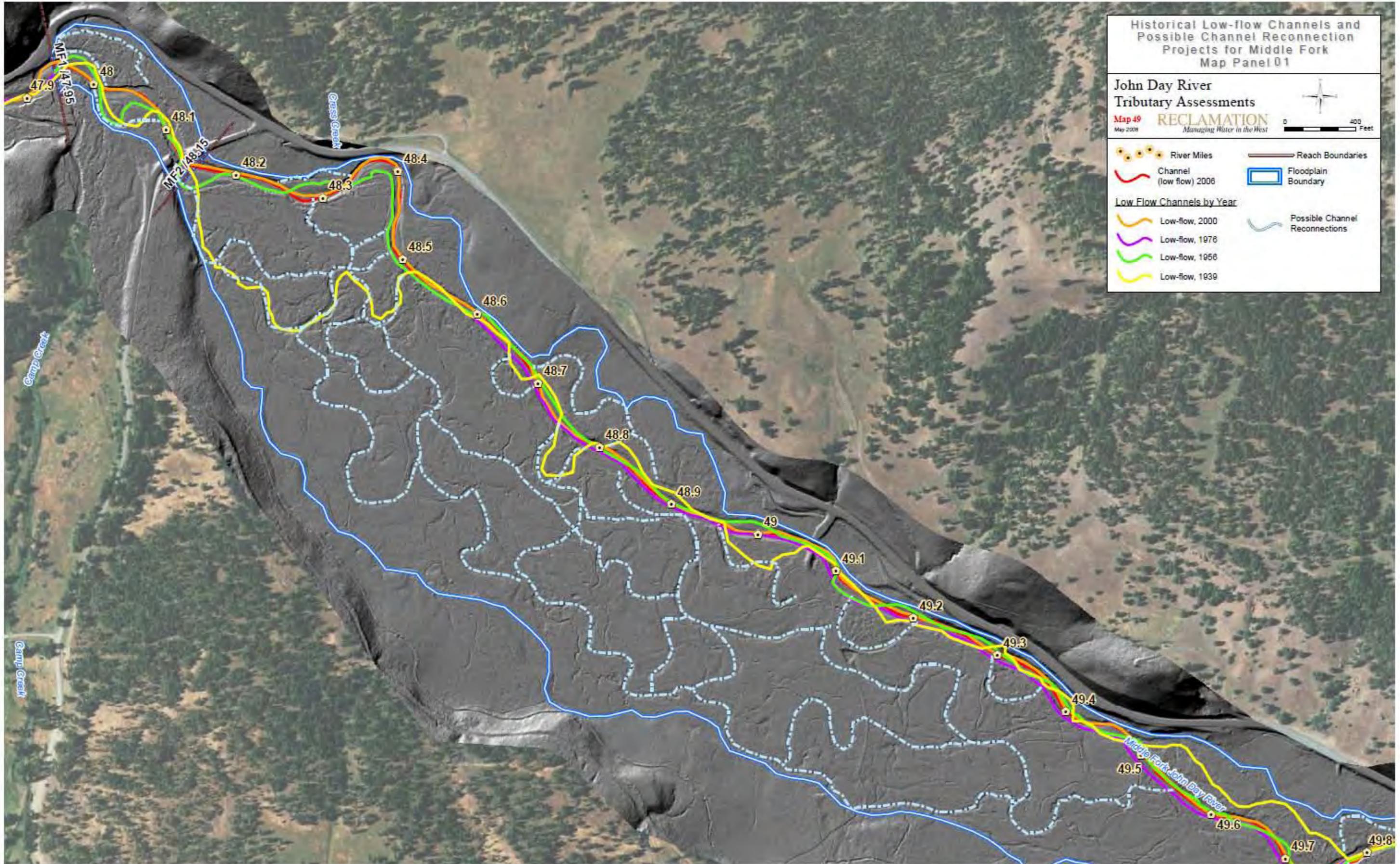


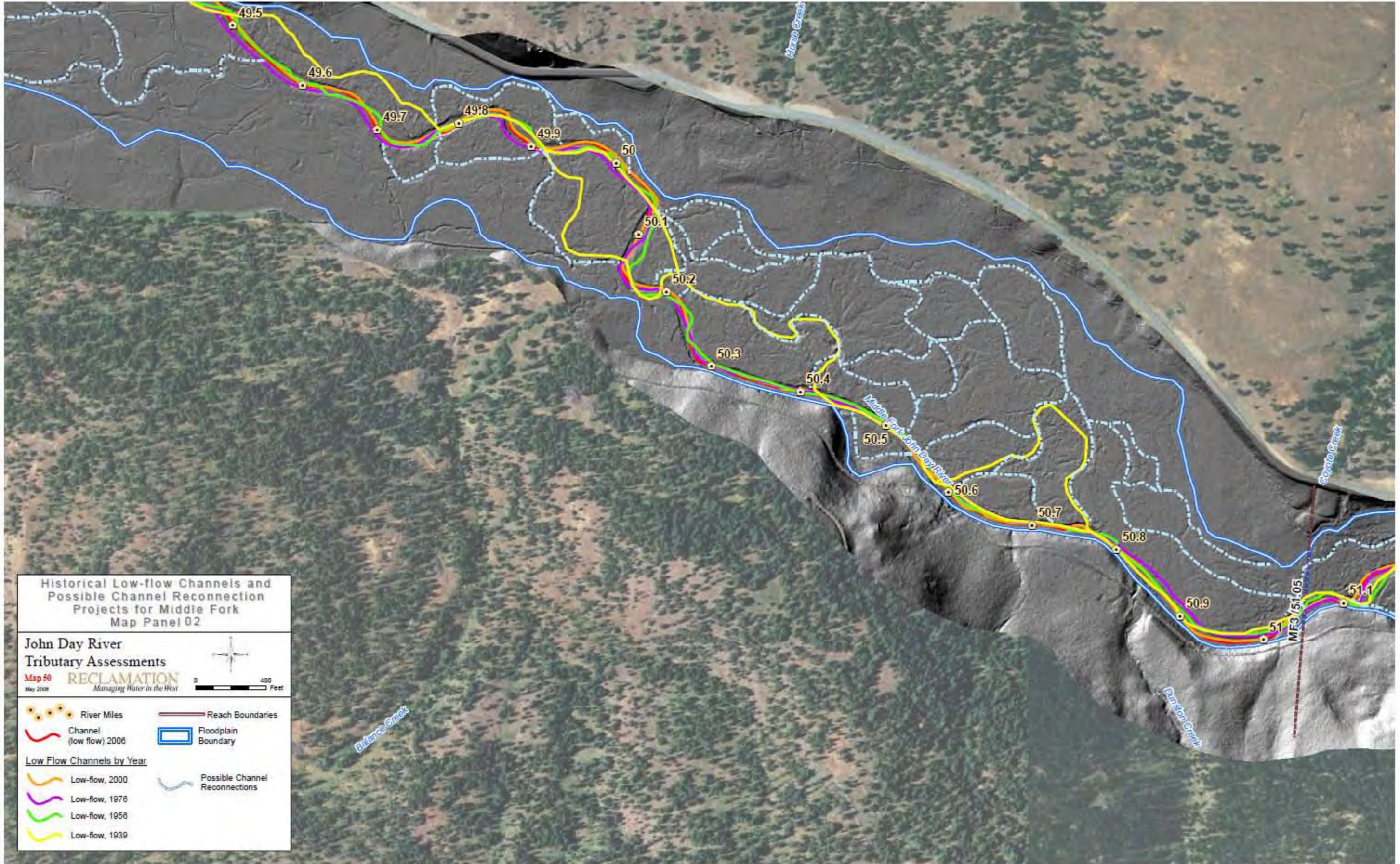
Historical Low-flow Channels and Possible Channel Reconnection Projects for Middle Fork  
Map Panel 01

John Day River  
Tributary Assessments  
Map 49  
May 2008  
RECLAMATION  
Managing Water in the West



- River Miles
- Channel (low flow) 2006
- Reach Boundaries
- Floodplain Boundary
- Low Flow Channels by Year**
- Low-flow, 2000
- Low-flow, 1976
- Low-flow, 1956
- Low-flow, 1939
- Possible Channel Reconnections



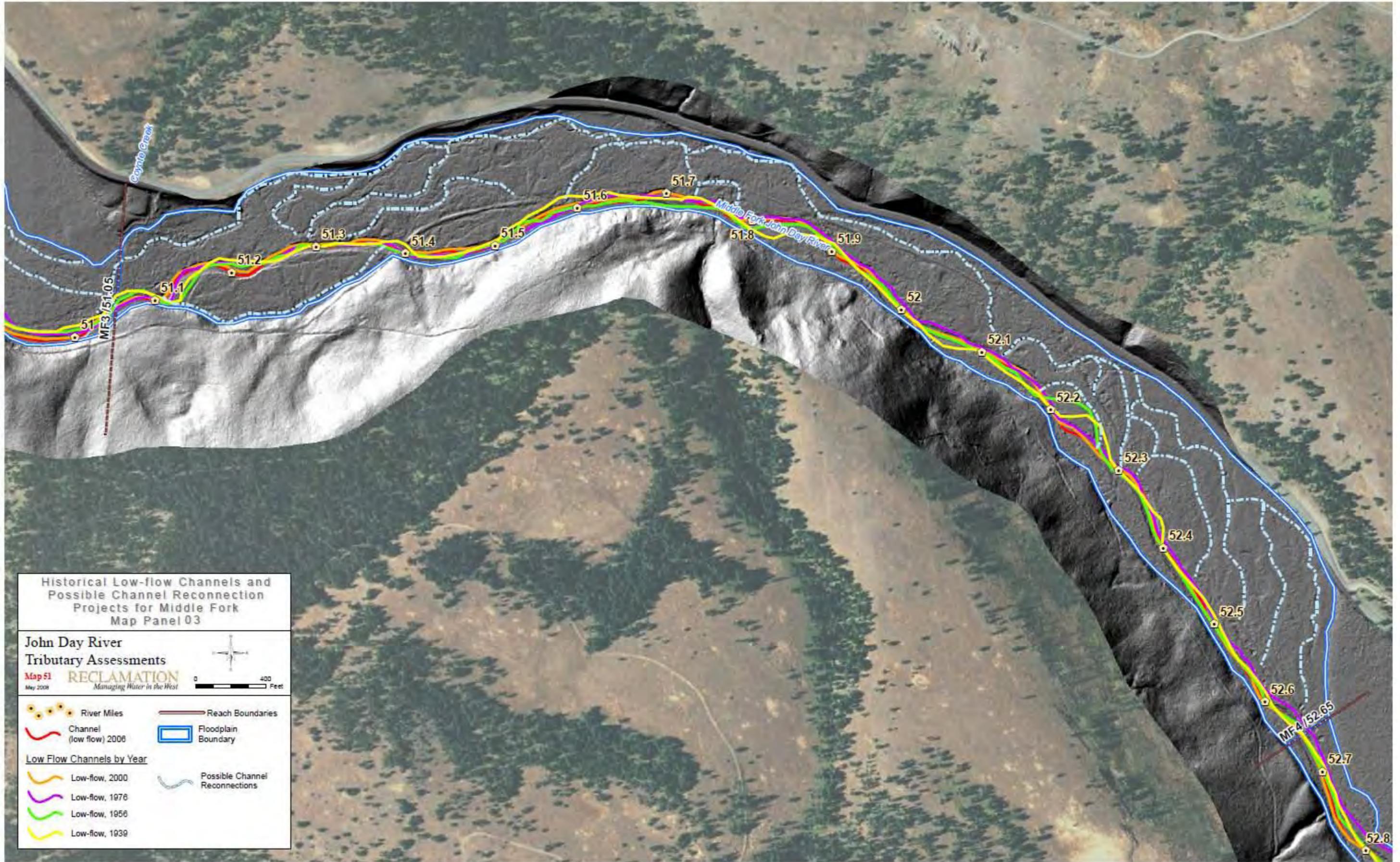


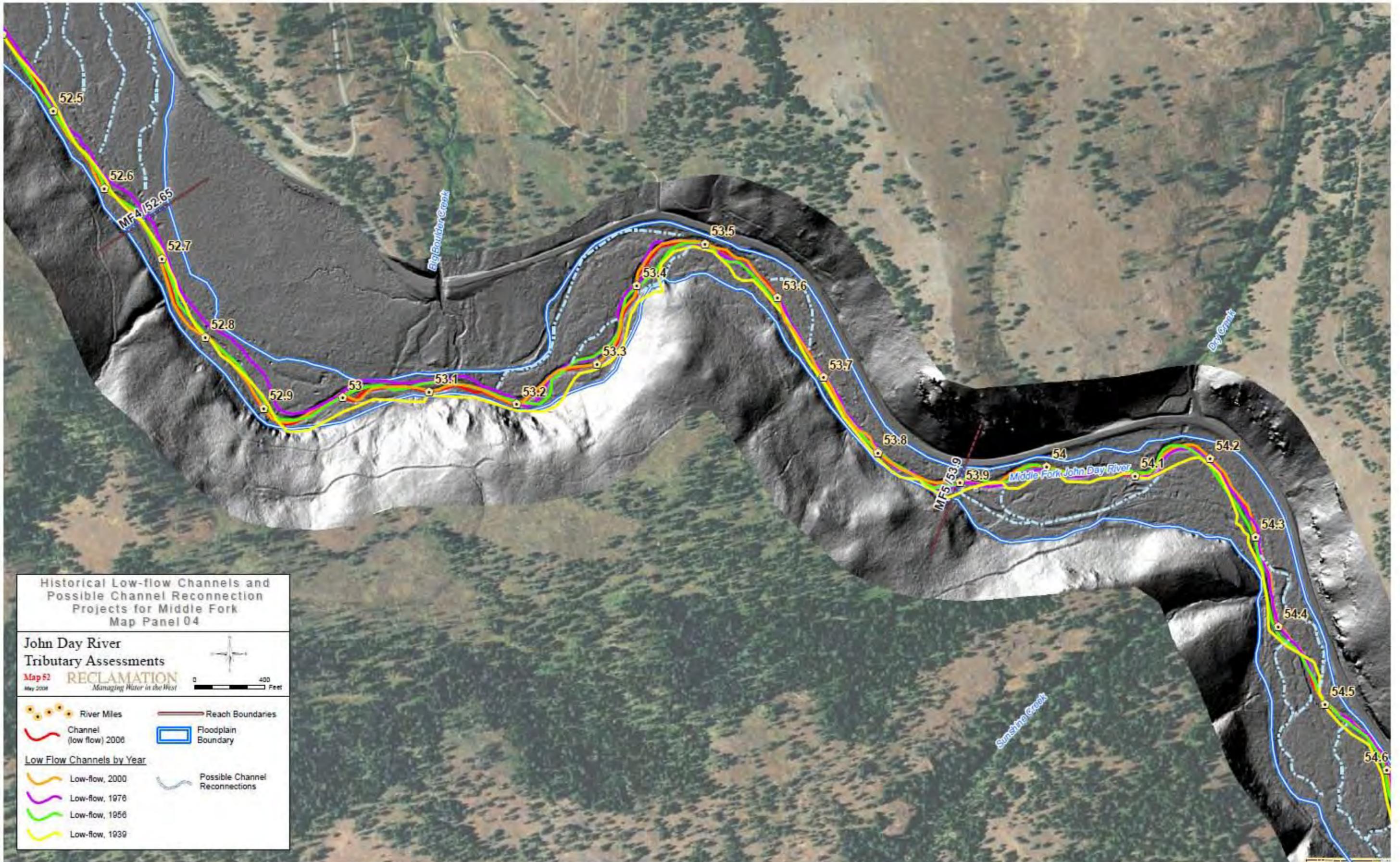
Historical Low-flow Channels and Possible Channel Reconnection Projects for Middle Fork  
Map Panel 02

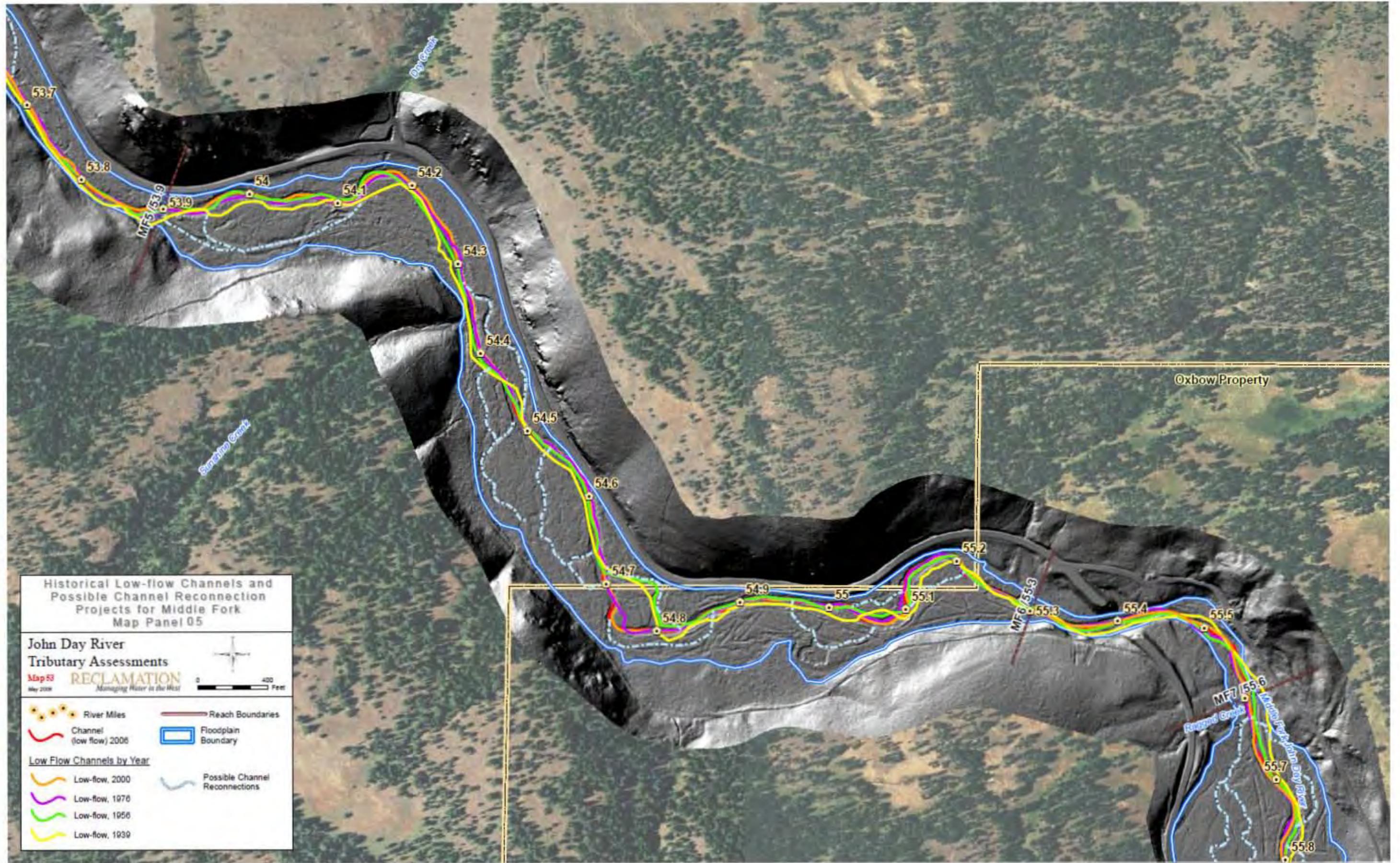
John Day River  
Tributary Assessments  
Map 50 RECLAMATION  
May 2008 Managing Water in the West



- River Miles
  - Channel (low flow) 2006
  - Floodplain Boundary
  - Reach Boundaries
  - Possible Channel Reconnections
- Low Flow Channels by Year**
- Low-flow, 2000
  - Low-flow, 1976
  - Low-flow, 1956
  - Low-flow, 1939







Historical Low-flow Channels and Possible Channel Reconnection Projects for Middle Fork  
Map Panel 05

John Day River  
Tributary Assessments  
Map 53 RECLAMATION  
May 2008 *Managing Water in the West*

- River Miles
- Channel (low flow) 2006
- Low-flow, 2000
- Low-flow, 1976
- Low-flow, 1956
- Low-flow, 1939
- Reach Boundaries
- Floodplain Boundary
- Possible Channel Reconnections

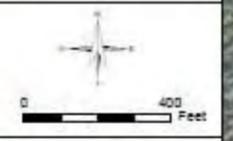
©xbow/Property

MF7 55.6

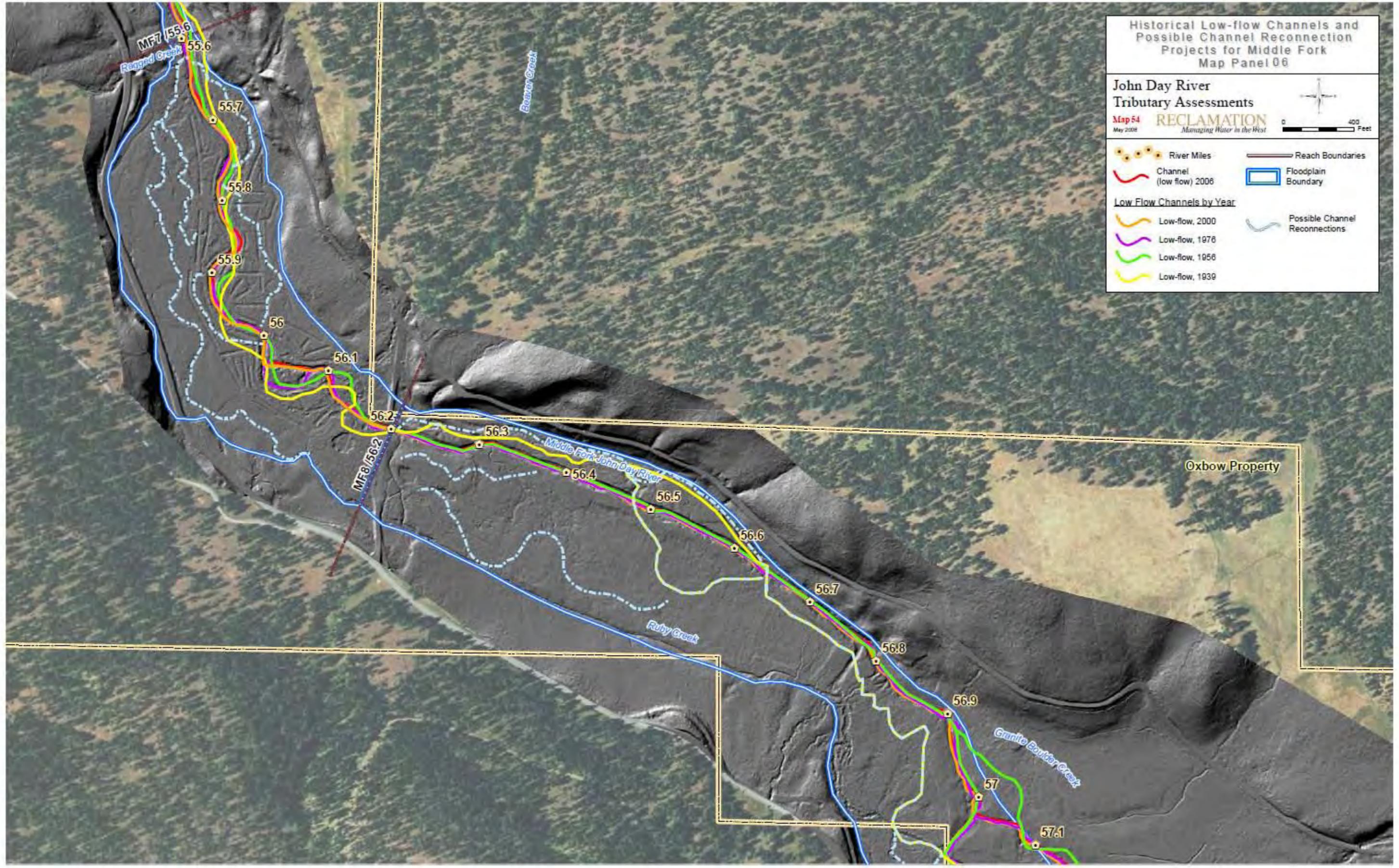
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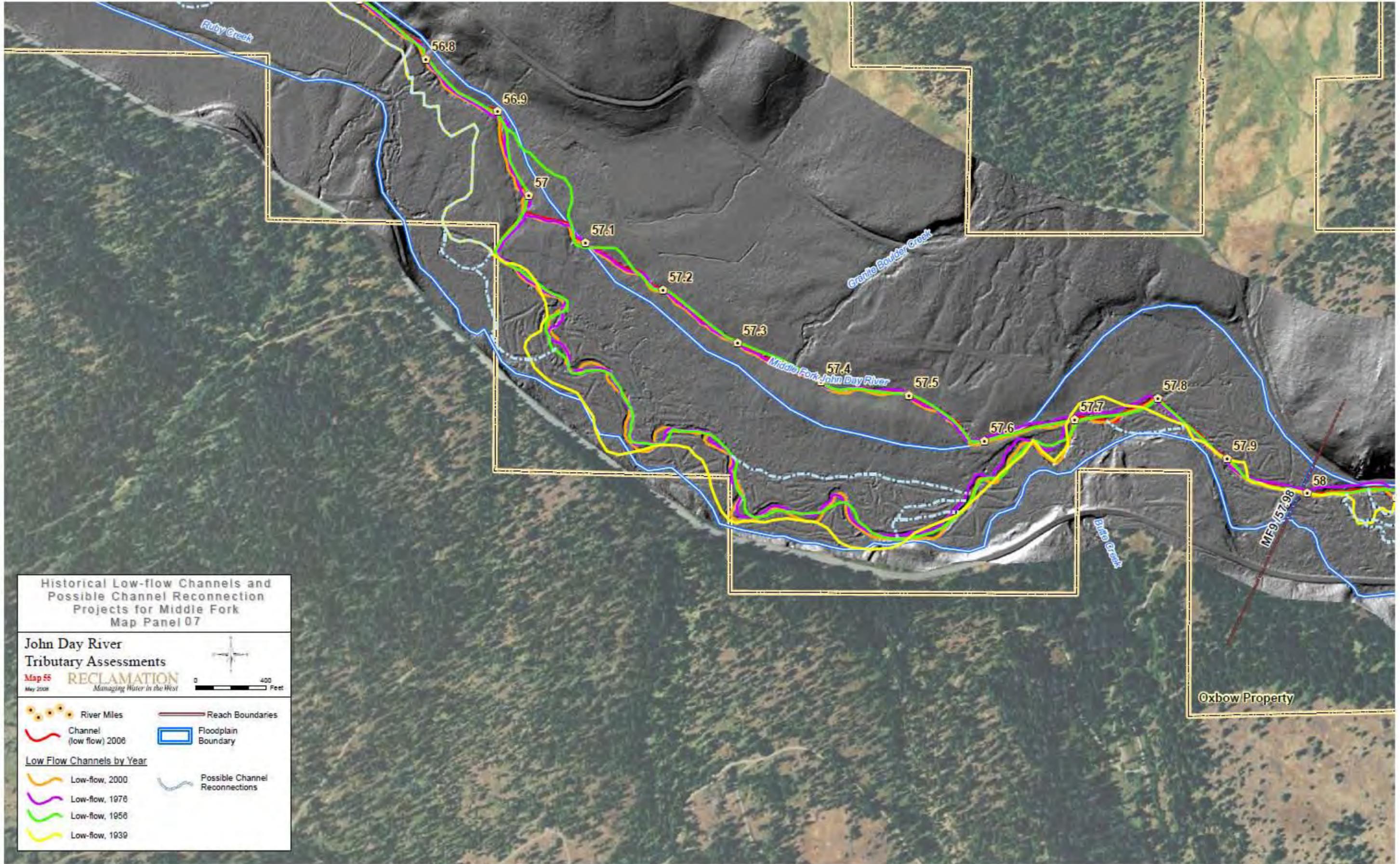
Historical Low-flow Channels and Possible Channel Reconnection Projects for Middle Fork  
Map Panel 06

John Day River  
Tributary Assessments  
Map 54  
May 2008  
RECLAMATION  
Managing Water in the West



- River Miles
- Channel (low flow) 2006
- Floodplain Boundary
- Low-flow, 2000
- Low-flow, 1976
- Low-flow, 1956
- Low-flow, 1939
- Reach Boundaries
- Floodplain Boundary
- Possible Channel Reconnections





Historical Low-flow Channels and Possible Channel Reconnection Projects for Middle Fork  
Map Panel 07

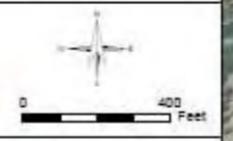
John Day River  
Tributary Assessments  
Map 55 RECLAMATION  
May 2008 Managing Water in the West

- River Miles
- Channel (low flow) 2006
- Low Flow Channels by Year**
- Low-flow, 2000
- Low-flow, 1978
- Low-flow, 1958
- Low-flow, 1939
- Reach Boundaries
- Floodplain Boundary
- Possible Channel Reconnections

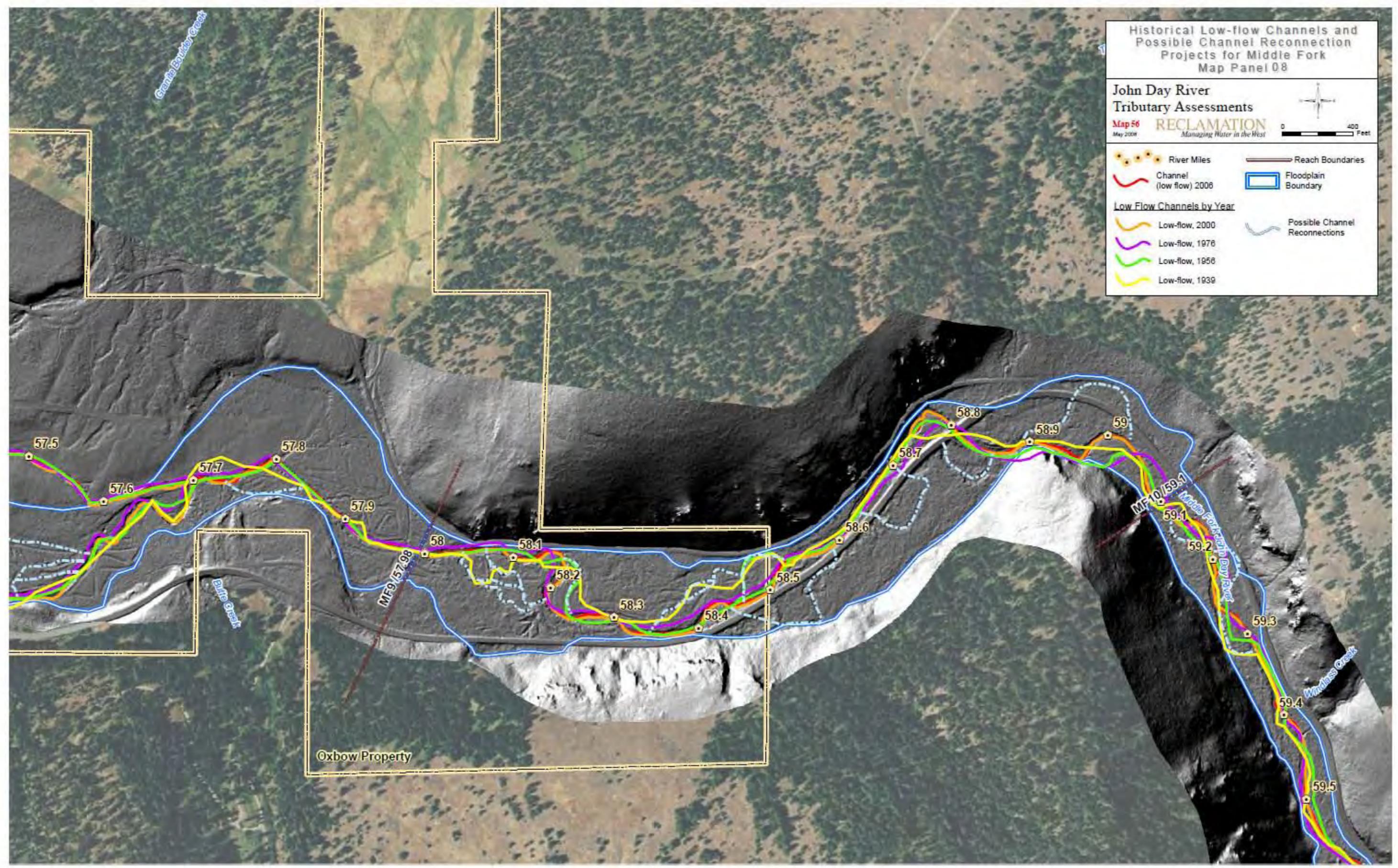
Oxbow Property

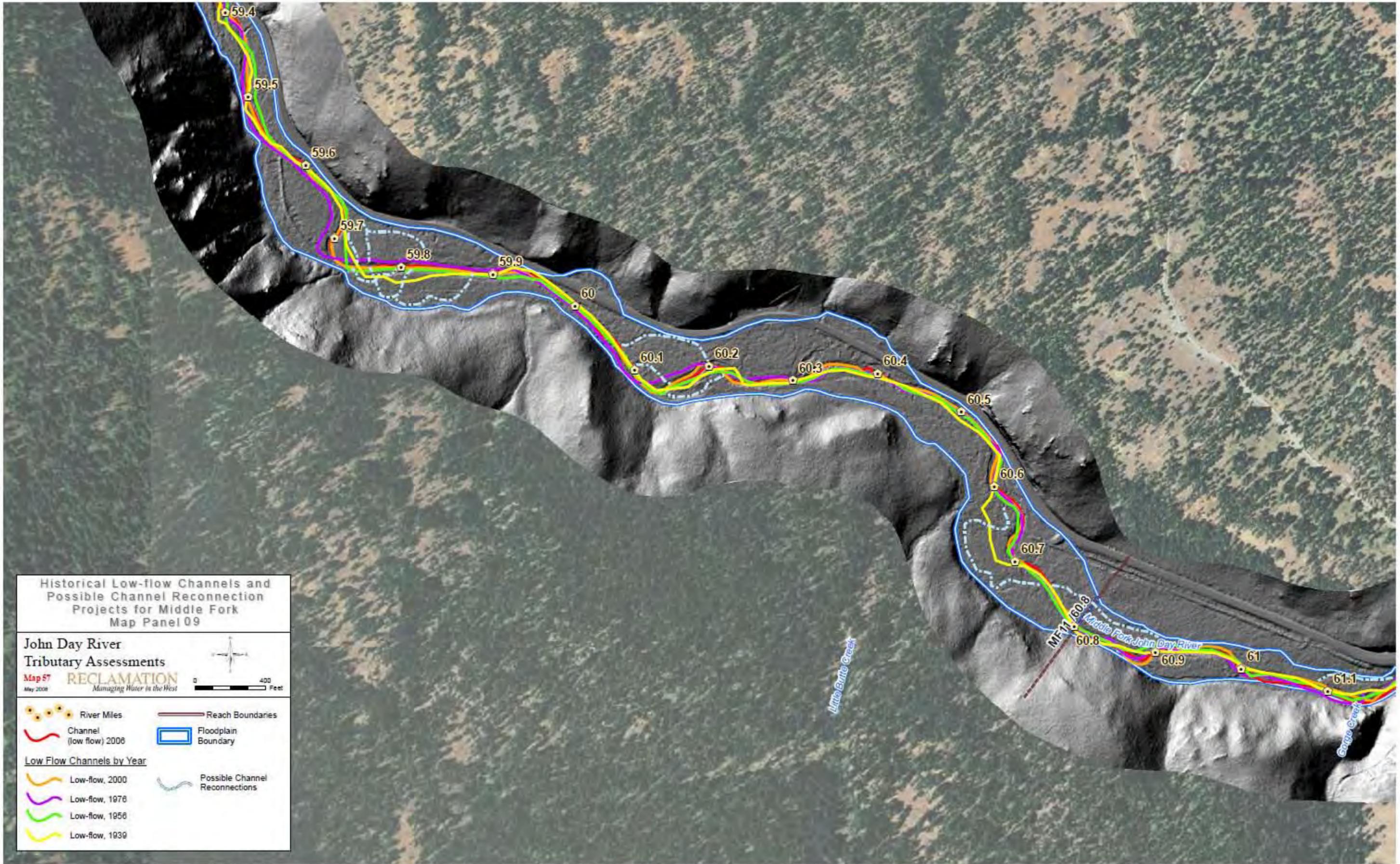
Historical Low-flow Channels and Possible Channel Reconnection Projects for Middle Fork  
Map Panel 08

John Day River  
Tributary Assessments  
Map 56  
May 2008  
RECLAMATION  
Managing Water in the West



- River Miles
- Channel (low flow) 2006
- Floodplain Boundary
- Low-flow, 2000
- Low-flow, 1976
- Low-flow, 1956
- Low-flow, 1939
- Reach Boundaries
- Floodplain Boundary
- Possible Channel Reconnections





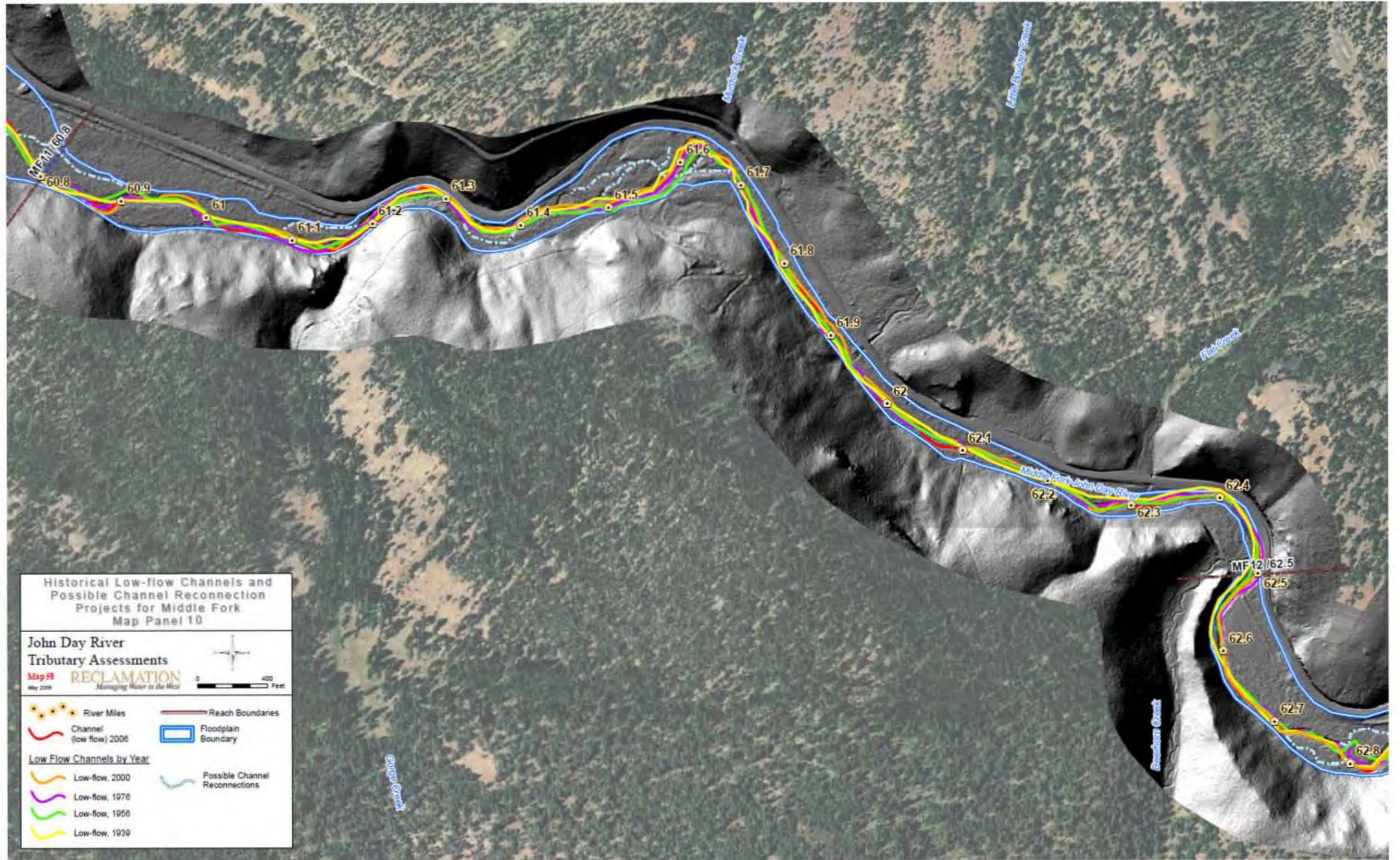
Historical Low-flow Channels and Possible Channel Reconnection Projects for Middle Fork  
Map Panel 09

**John Day River  
Tributary Assessments**

Map 57 RECLAMATION  
May 2008 *Managing Water in the West*

400 Feet

River Miles	Reach Boundaries
Channel (low flow) 2008	Floodplain Boundary
<b>Low Flow Channels by Year</b>	
Low-flow, 2000	Possible Channel Reconnections
Low-flow, 1978	
Low-flow, 1956	
Low-flow, 1939	

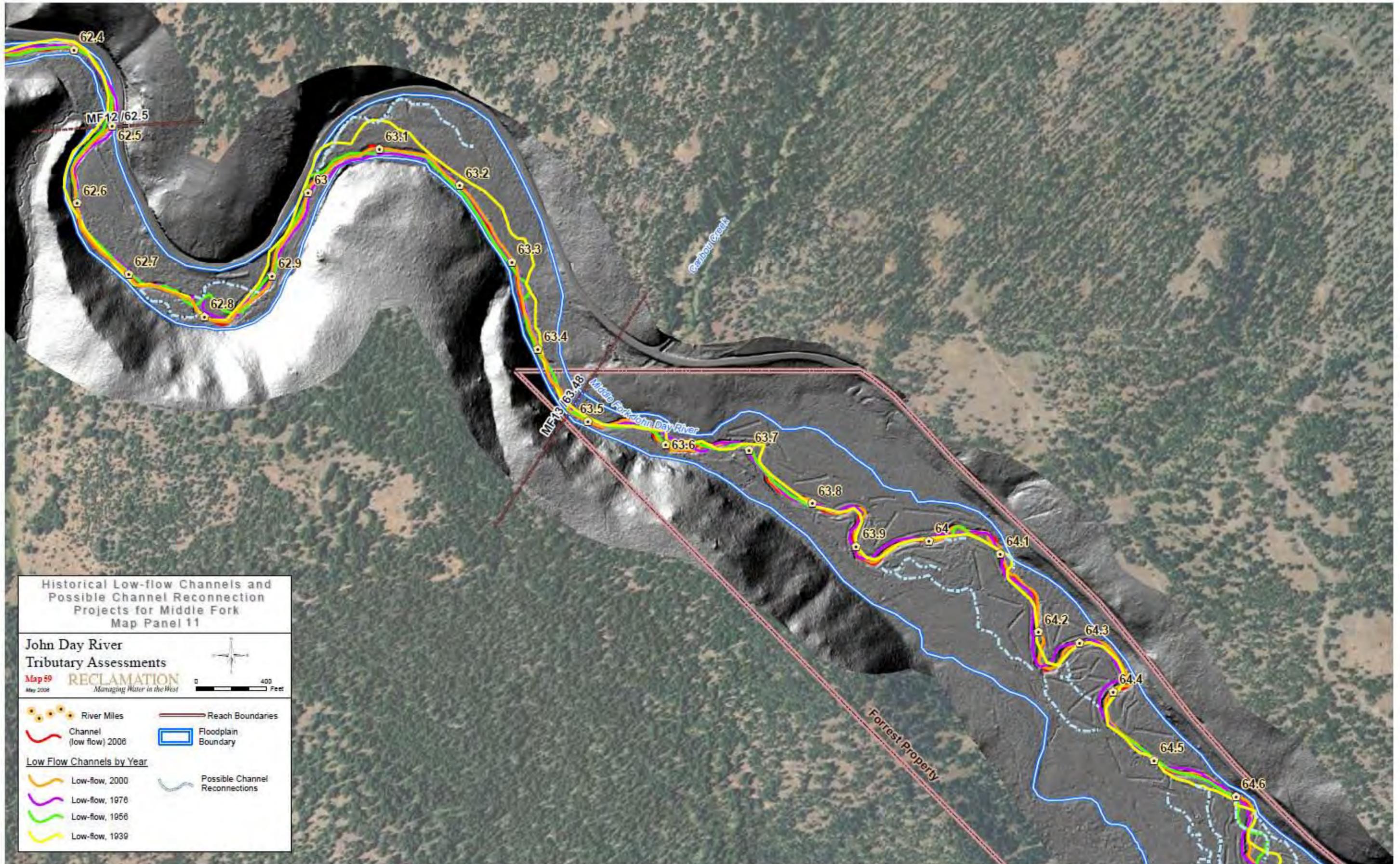


Historical Low-flow Channels and Possible Channel Reconnection Projects for Middle Fork  
Map Panel 10

**John Day River  
Tributary Assessments**  
 Map 58 RECLAMATION  
 May 2008 Managing Water in the West

0 400 Feet

River Miles	Reach Boundaries
Channel (low flow) 2006	Floodplain Boundary
<b>Low Flow Channels by Year</b>	
Low-flow, 2000	Possible Channel Reconnections
Low-flow, 1976	
Low-flow, 1956	
Low-flow, 1939	



Historical Low-flow Channels and Possible Channel Reconnection Projects for Middle Fork  
Map Panel 11

**John Day River  
Tributary Assessments**  
 Map 59 RECLAMATION  
 May 2008 *Managing Water in the West*

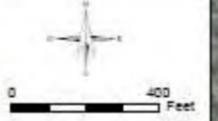
River Miles  
 Channel (low flow) 2006  
 Reach Boundaries  
 Floodplain Boundary  
**Low Flow Channels by Year**  
 Low-flow, 2000  
 Low-flow, 1976  
 Low-flow, 1956  
 Low-flow, 1939  
 Possible Channel Reconnections

Historical Low-flow Channels and  
Possible Channel Reconnection  
Projects for Middle Fork  
Map Panel 12

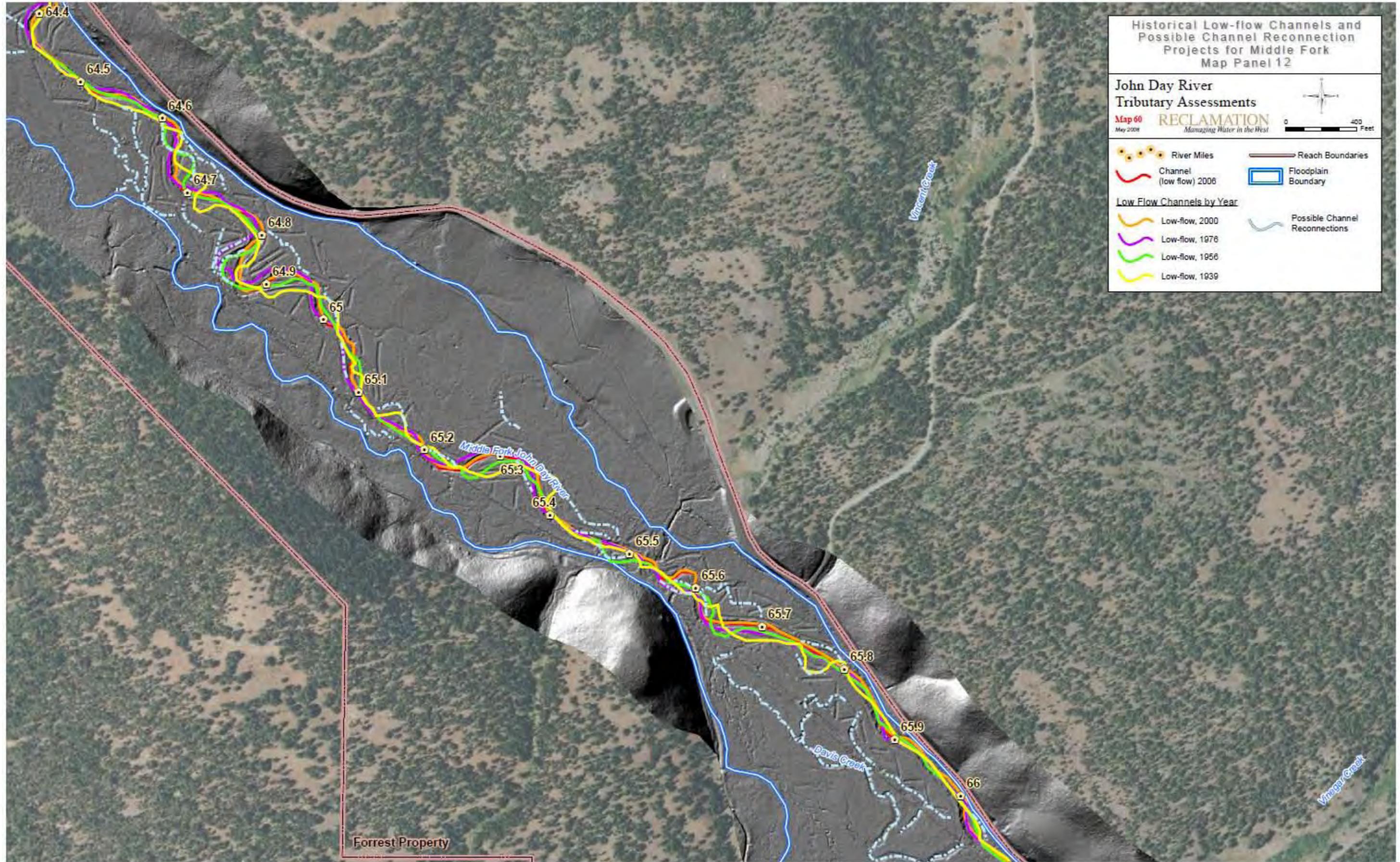
John Day River  
Tributary Assessments

Map 60  
May 2008

RECLAMATION  
Managing Water in the West



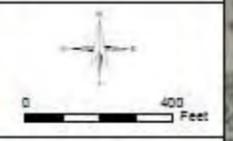
River Miles	Reach Boundaries
Channel (low flow) 2006	Floodplain Boundary
<b>Low Flow Channels by Year</b>	
Low-flow, 2000	Possible Channel Reconnections
Low-flow, 1976	
Low-flow, 1956	
Low-flow, 1939	



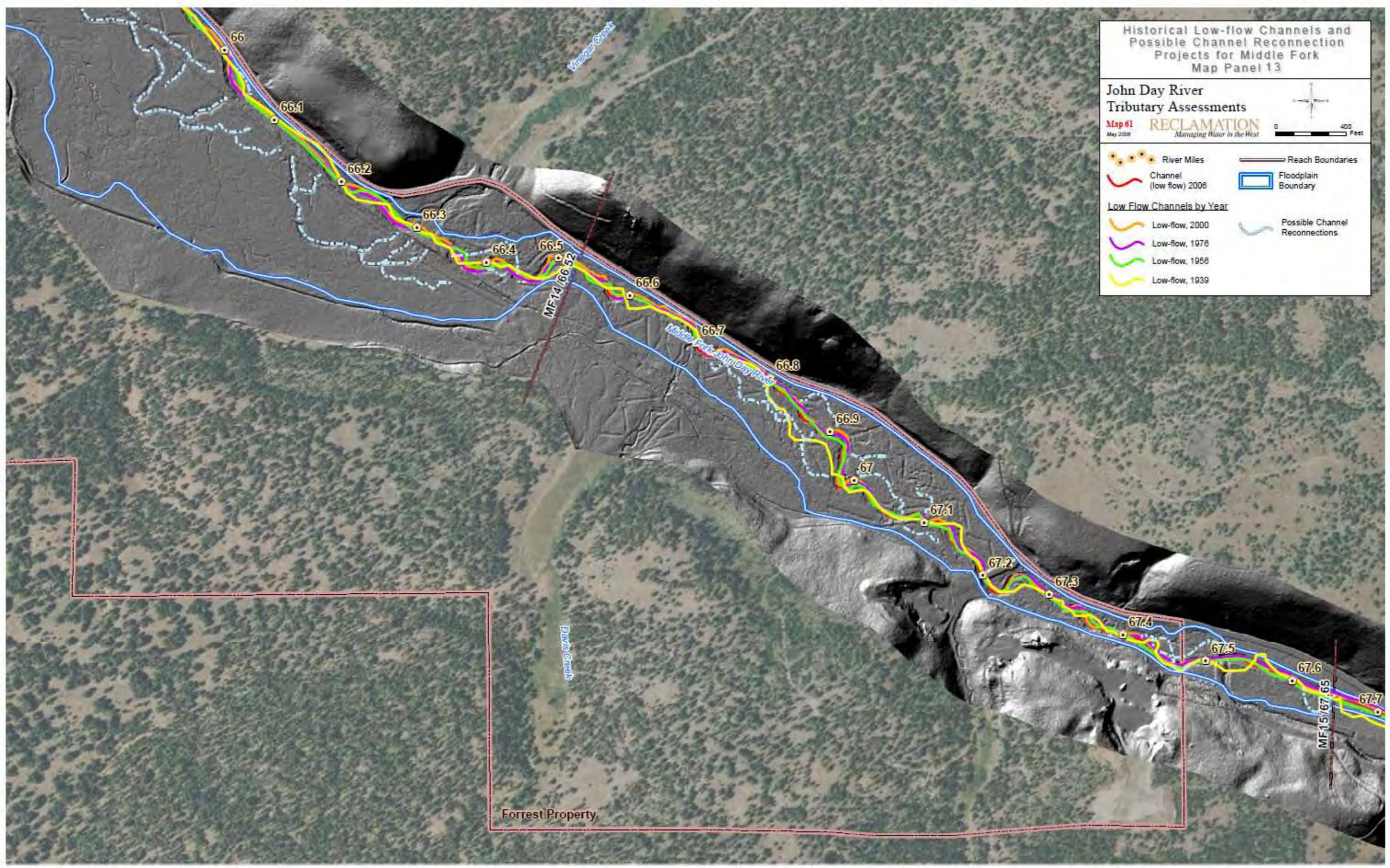
Forrest Property

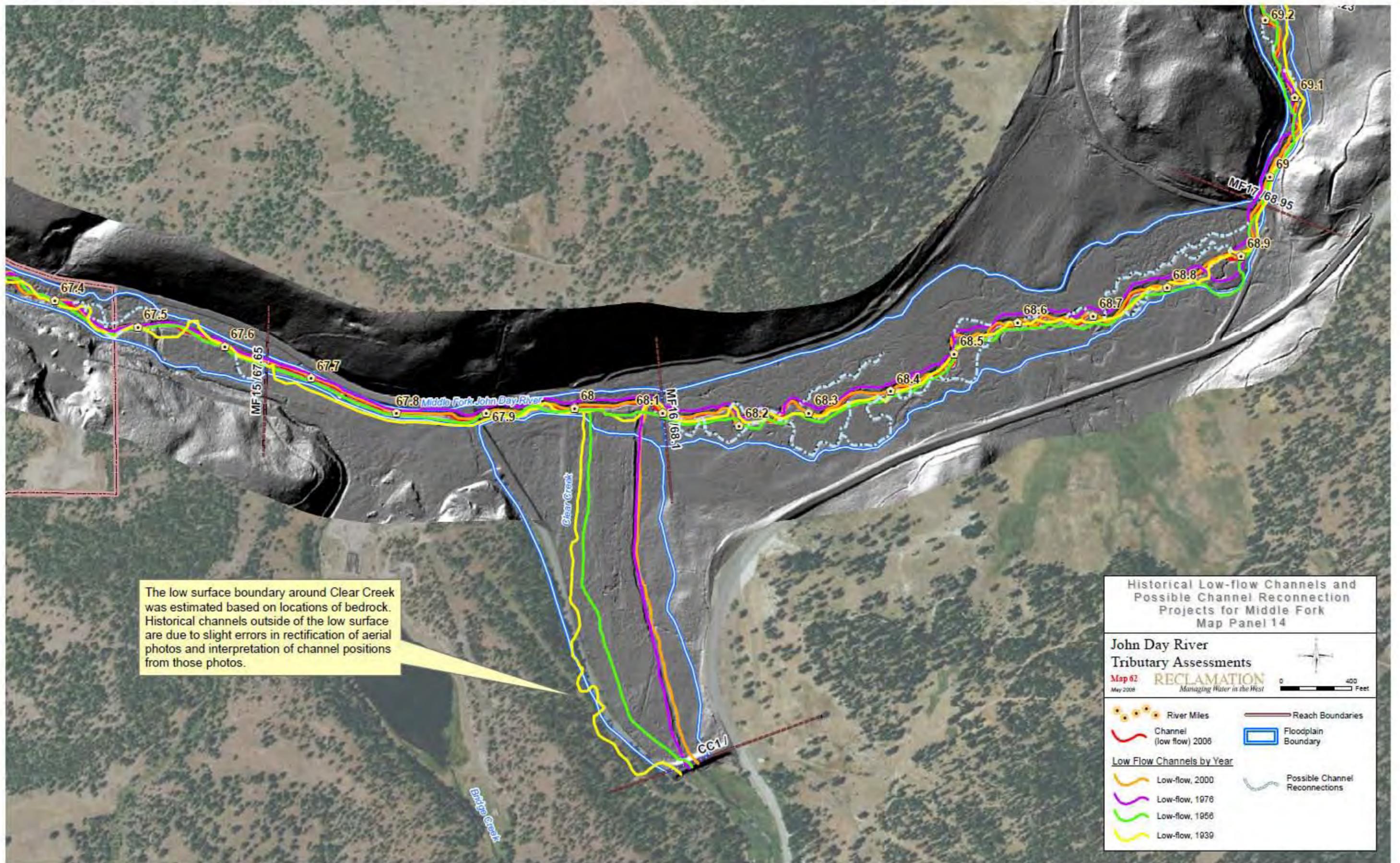
Historical Low-flow Channels and Possible Channel Reconnection Projects for Middle Fork  
Map Panel 13

John Day River  
Tributary Assessments  
Map 61  
May 2008  
RECLAMATION  
Managing Water in the West



- River Miles
- Channel (low flow) 2008
- Floodplain Boundary
- Reach Boundaries
- Low-flow, 2000
- Low-flow, 1976
- Low-flow, 1956
- Low-flow, 1939
- Possible Channel Reconnections





**Historical Low-flow Channels and Possible Channel Reconnection Projects for Middle Fork**  
**Map Panel 14**

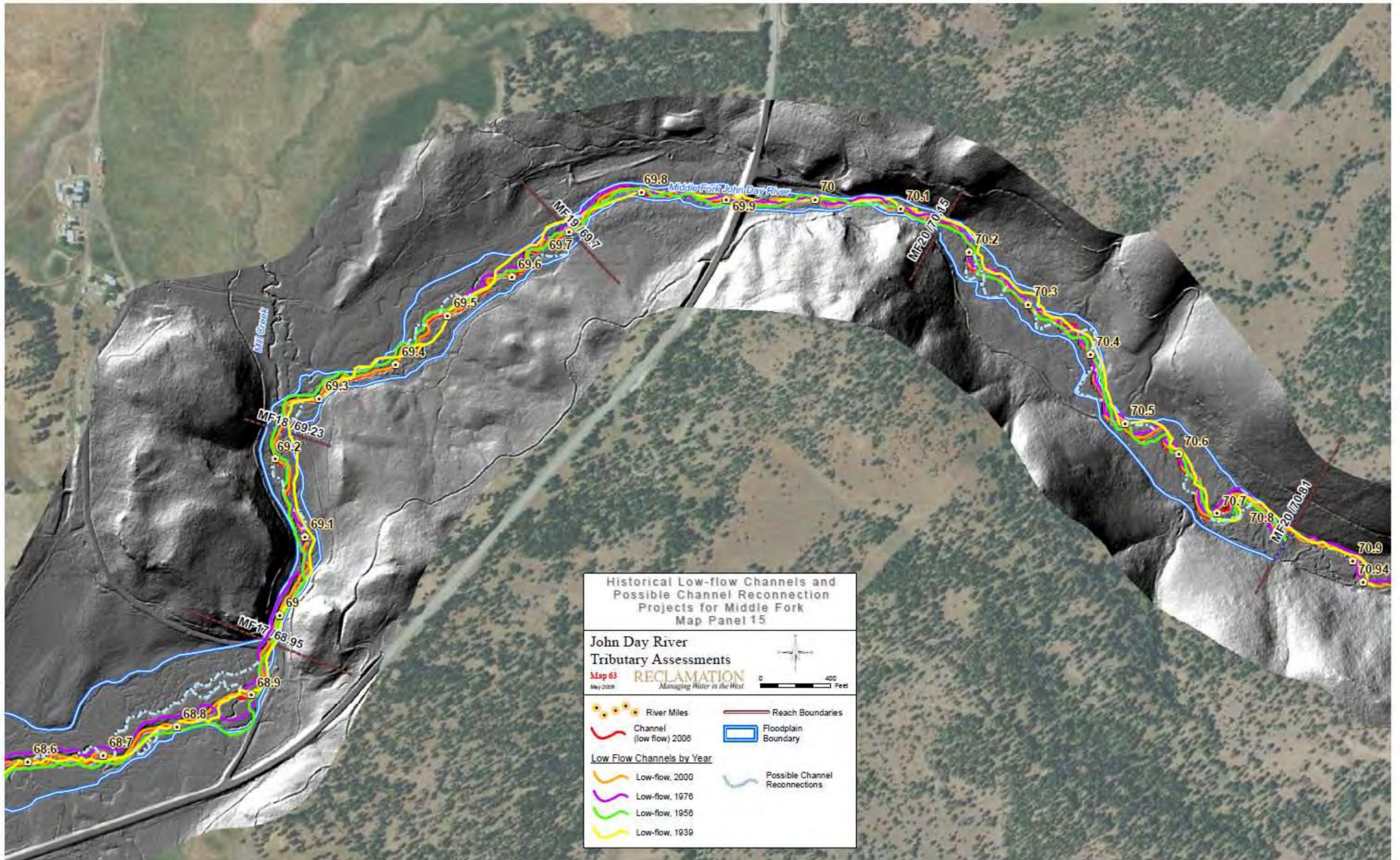
**John Day River**  
**Tributary Assessments**

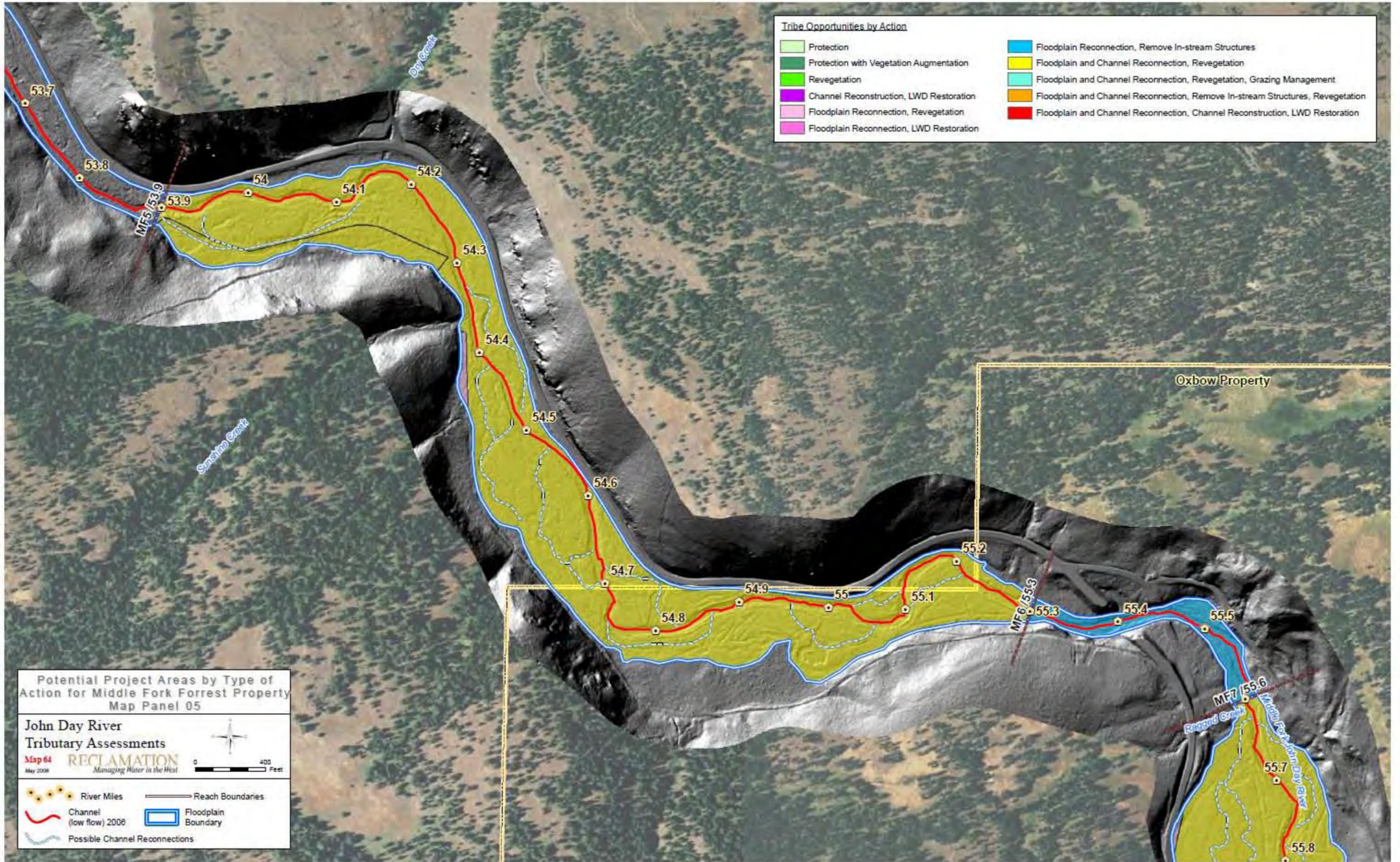
Map 62 RECLAMATION  
 May 2008 Managing Water in the West

0 400 Feet

River Miles  
 Channel (low flow) 2006  
 Low-flow, 2000  
 Low-flow, 1976  
 Low-flow, 1956  
 Low-flow, 1939

Reach Boundaries  
 Floodplain Boundary  
 Possible Channel Reconnections





**Tribe Opportunities by Action**

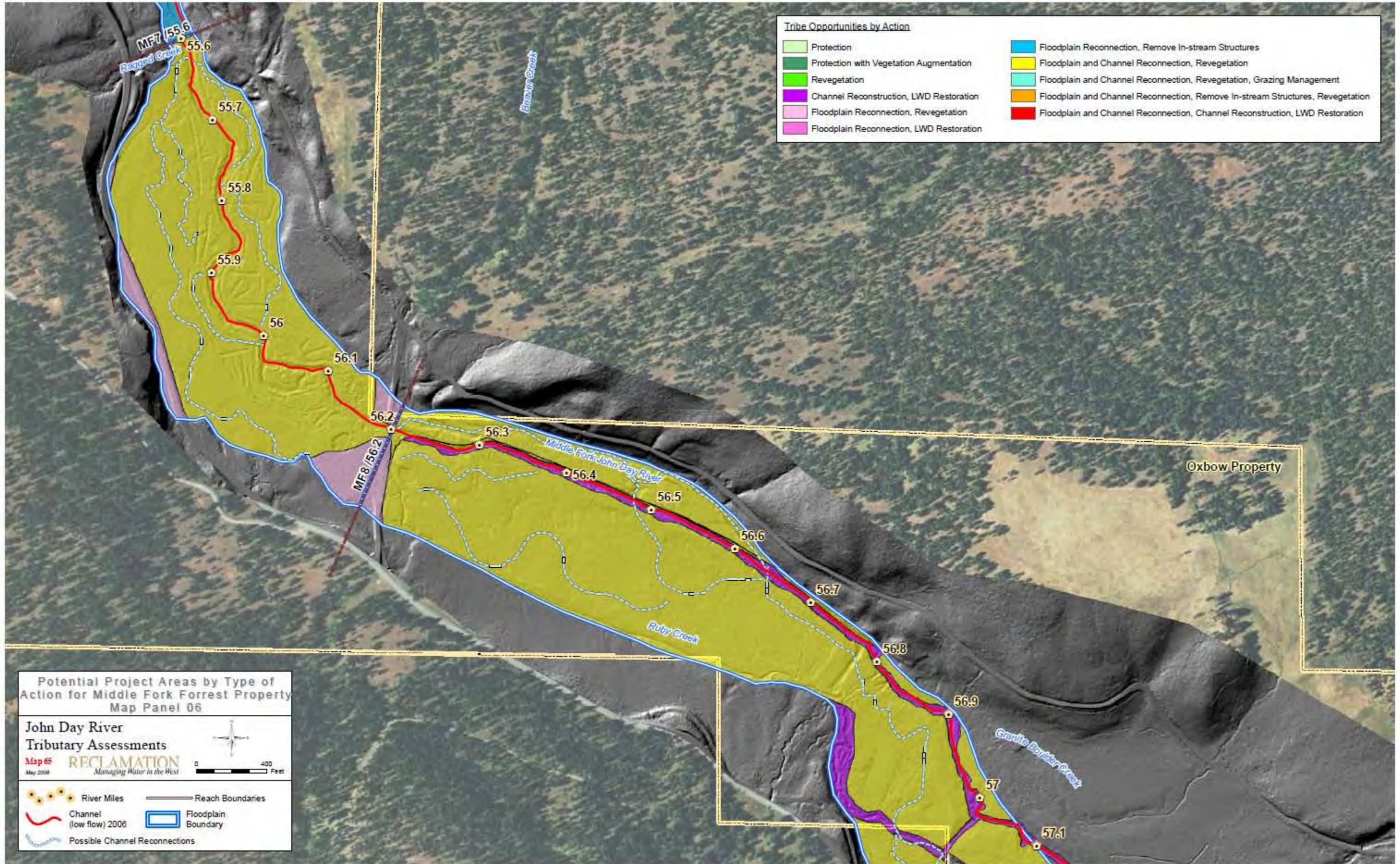
- |  |  |
|--|--|
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #90EE90; border: 1px solid black;"></span> Protection                               | <span style="display: inline-block; width: 15px; height: 10px; background-color: #00B0F0; border: 1px solid black;"></span> Floodplain Reconnection, Remove In-stream Structures                           |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #3CB371; border: 1px solid black;"></span> Protection with Vegetation Augmentation  | <span style="display: inline-block; width: 15px; height: 10px; background-color: #FFFF00; border: 1px solid black;"></span> Floodplain and Channel Reconnection, Revegetation                              |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #00FF00; border: 1px solid black;"></span> Revegetation                             | <span style="display: inline-block; width: 15px; height: 10px; background-color: #00FFFF; border: 1px solid black;"></span> Floodplain and Channel Reconnection, Revegetation, Grazing Management          |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #FF00FF; border: 1px solid black;"></span> Channel Reconstruction, LWD Restoration  | <span style="display: inline-block; width: 15px; height: 10px; background-color: #FFA500; border: 1px solid black;"></span> Floodplain and Channel Reconnection, Remove In-stream Structures, Revegetation |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #FFB6C1; border: 1px solid black;"></span> Floodplain Reconnection, Revegetation    | <span style="display: inline-block; width: 15px; height: 10px; background-color: #FF0000; border: 1px solid black;"></span> Floodplain and Channel Reconnection, Channel Reconstruction, LWD Restoration   |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #FF69B4; border: 1px solid black;"></span> Floodplain Reconnection, LWD Restoration |  |

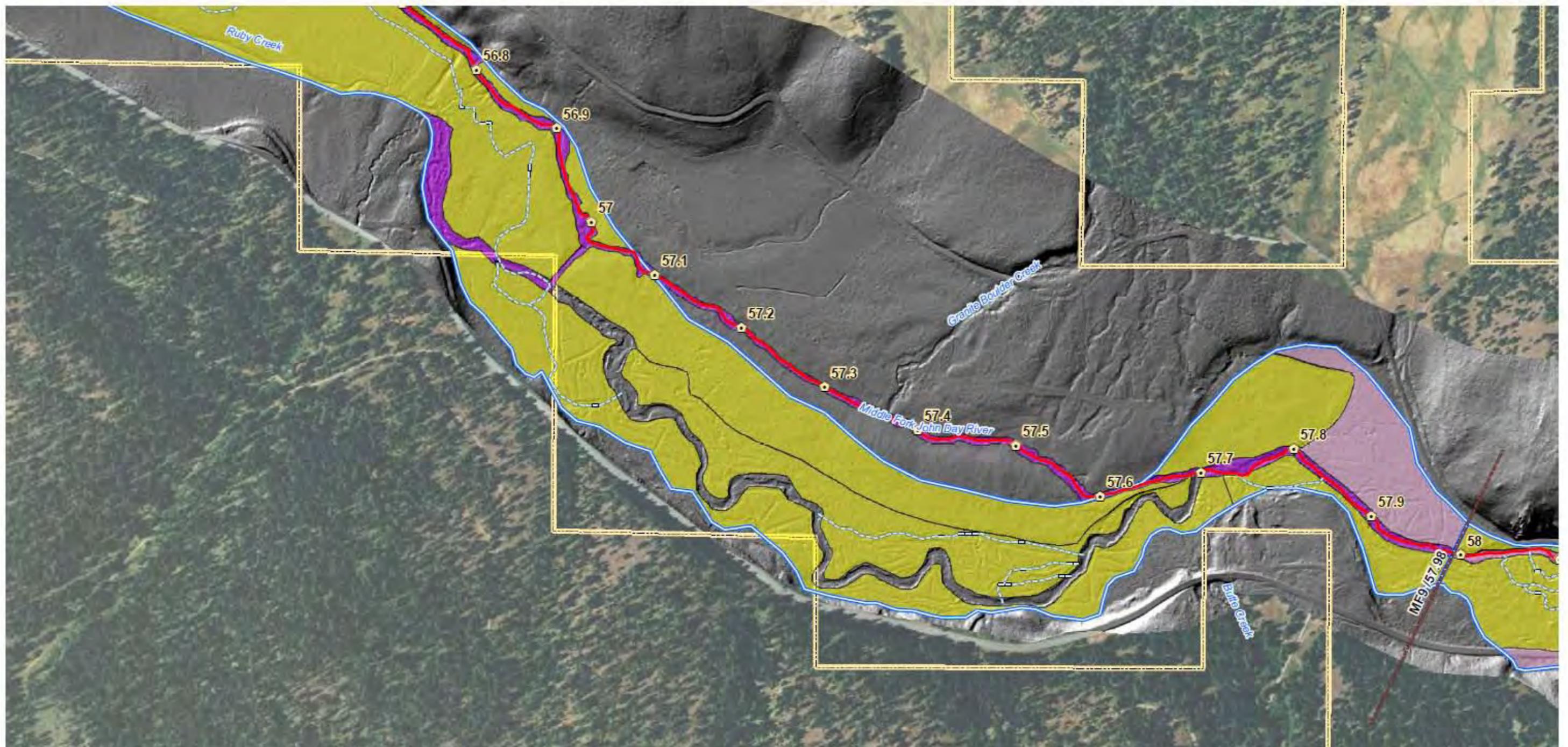
Potential Project Areas by Type of Action for Middle Fork Forrest Property  
Map Panel 05

**John Day River  
Tributary Assessments**  
Map 64 RECLAMATION  
May 2008 *Managing Water in the West*

0 400 Feet

● River Miles      — Reach Boundaries  
 ~ Channel (low flow) 2008      □ Floodplain Boundary  
 ~ Possible Channel Reconnections





Potential Project Areas by Type of Action for Middle Fork Forrest Property  
Map Panel 07

**John Day River  
Tributary Assessments**

Map 66 RECLAMATION  
May 2008 *Managing Water in the West*

River Miles (0 to 400 Feet scale bar)  
Reach Boundaries (dashed line)  
Channel (low flow) 2006 (red line)  
Floodplain Boundary (blue outline)  
Possible Channel Reconnections (dashed line)

Tribute Opportunities by Action			
Light Green	Protection	Light Blue	Floodplain Reconnection, Remove In-stream Structures
Dark Green	Protection with Vegetation Augmentation	Yellow	Floodplain and Channel Reconnection, Revegetation
Bright Green	Revegetation	Cyan	Floodplain and Channel Reconnection, Revegetation, Grazing Management
Purple	Channel Reconstruction, LWD Restoration	Orange	Floodplain and Channel Reconnection, Remove In-stream Structures, Revegetation
Pink	Floodplain Reconnection, Revegetation	Red	Floodplain and Channel Reconnection, Channel Reconstruction, LWD Restoration
Magenta	Floodplain Reconnection, LWD Restoration		

Oxbow Property

**Tribe Opportunities by Action**

Protection	Floodplain Reconnection, Remove In-stream Structures
Protection with Vegetation Augmentation	Floodplain and Channel Reconnection, Revegetation
Revegetation	Floodplain and Channel Reconnection, Revegetation, Grazing Management
Channel Reconstruction, LWD Restoration	Floodplain and Channel Reconnection, Remove In-stream Structures, Revegetation
Floodplain Reconnection, Revegetation	Floodplain and Channel Reconnection, Channel Reconstruction, LWD Restoration
Floodplain Reconnection, LWD Restoration	

Potential Project Areas by Type of Action for Middle Fork Forrest Property  
Map Panel 08

**John Day River**  
Tributary Assessments

Map 67  
May 2008

**RECLAMATION**  
Managing Water in the West

0 400 Feet

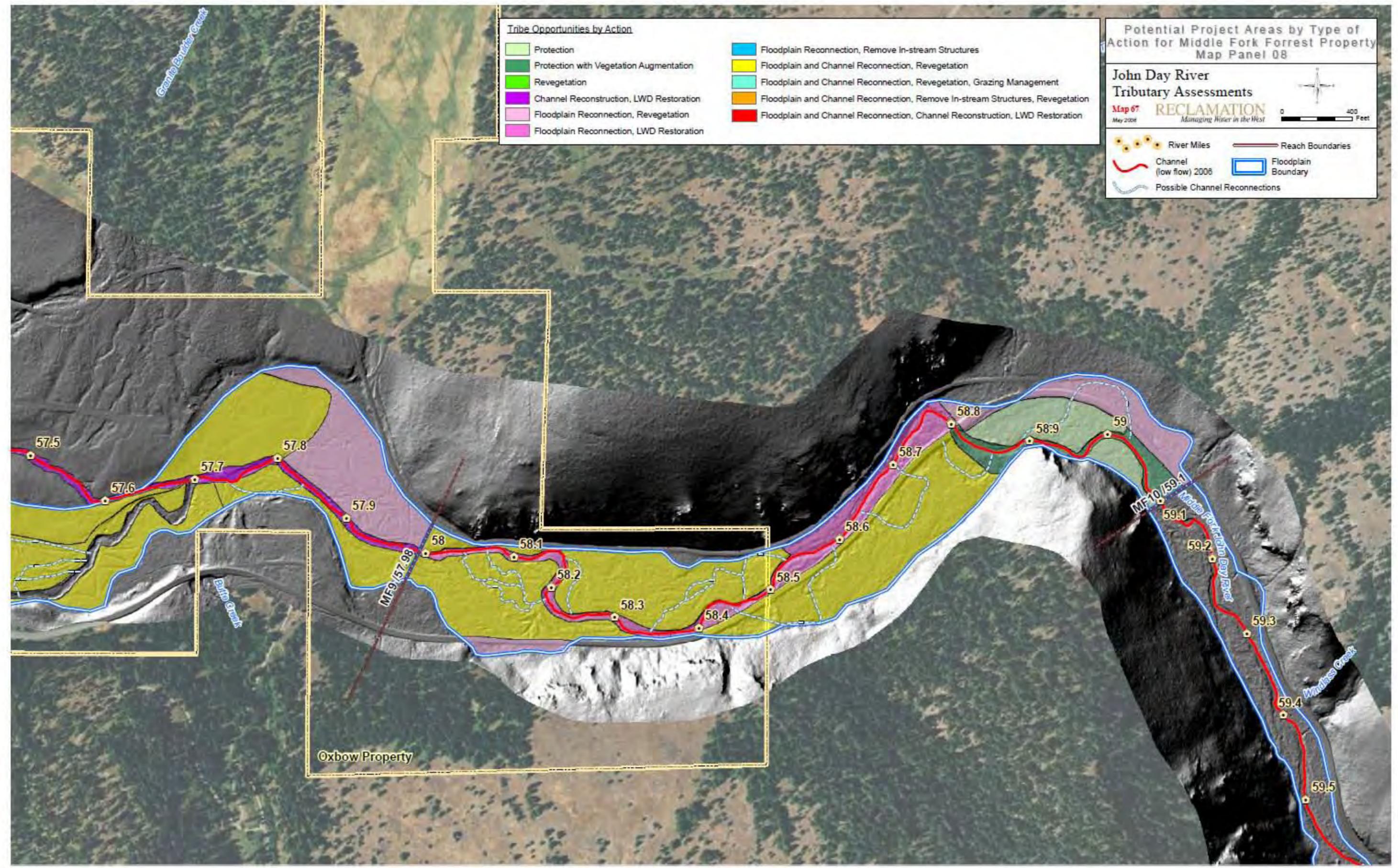
River Miles

Channel (low flow) 2008

Possible Channel Reconnections

Reach Boundaries

Floodplain Boundary



Potential Project Areas by Type of Action for Middle Fork Forrest Property  
Map Panel 11

John Day River  
Tributary Assessments

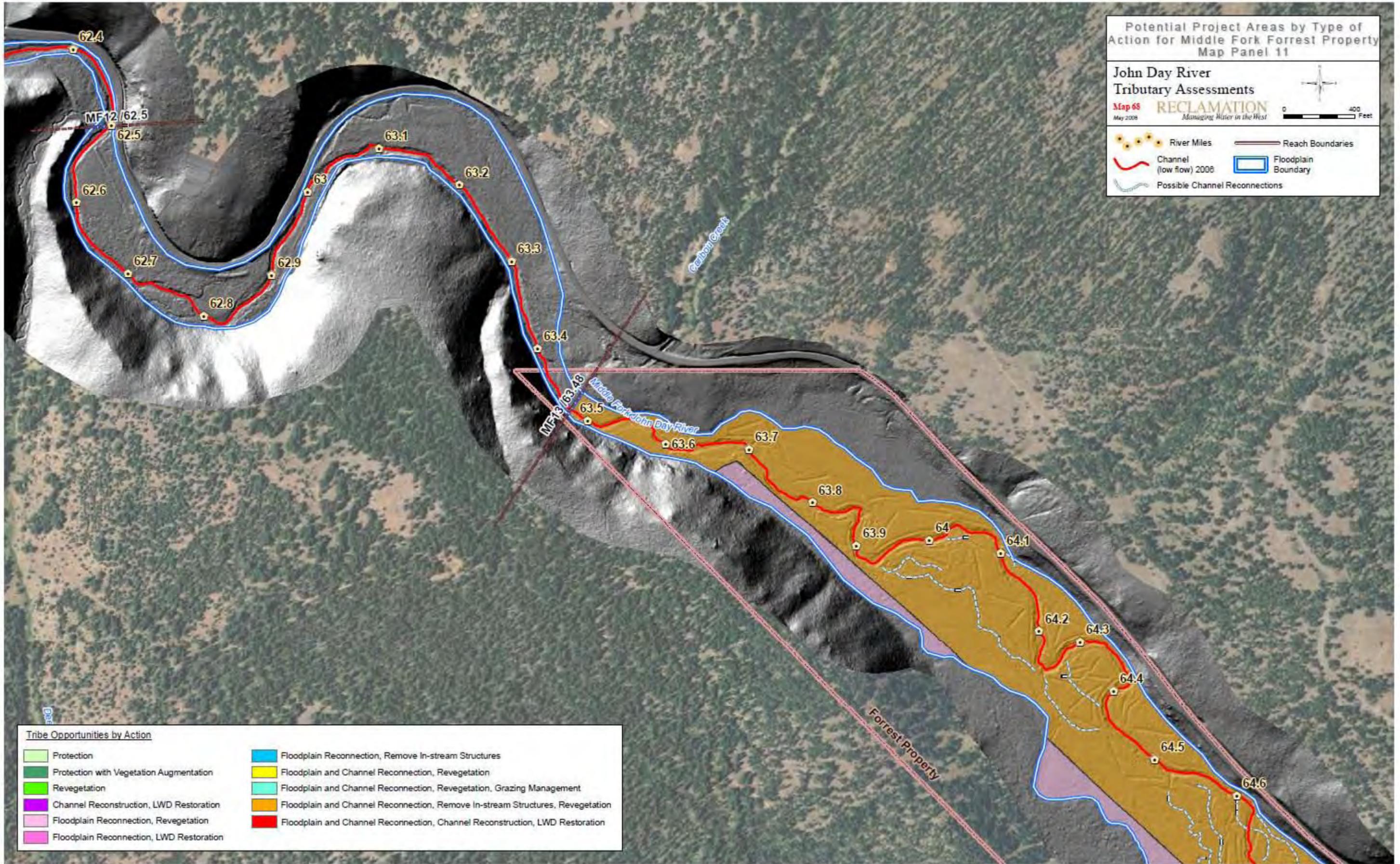
Map 68  
May 2008

RECLAMATION  
Managing Water in the West



0 400 Feet

- River Miles
- Channel (low flow) 2008
- Floodplain Boundary
- Possible Channel Reconnections
- Reach Boundaries
- Floodplain Boundary



Tribe Opportunities by Action	
	Protection
	Protection with Vegetation Augmentation
	Revegetation
	Channel Reconstruction, LWD Restoration
	Floodplain Reconnection, Revegetation
	Floodplain Reconnection, LWD Restoration
	Floodplain Reconnection, Remove In-stream Structures
	Floodplain and Channel Reconnection, Revegetation
	Floodplain and Channel Reconnection, Revegetation, Grazing Management
	Floodplain and Channel Reconnection, Remove In-stream Structures, Revegetation
	Floodplain and Channel Reconnection, Channel Reconstruction, LWD Restoration

**Tribe Opportunities by Action**

	Protection		Floodplain Reconnection, Remove In-stream Structures
	Protection with Vegetation Augmentation		Floodplain and Channel Reconnection, Revegetation
	Revegetation		Floodplain and Channel Reconnection, Revegetation, Grazing Management
	Channel Reconstruction, LWD Restoration		Floodplain and Channel Reconnection, Remove In-stream Structures, Revegetation
	Floodplain Reconnection, Revegetation		Floodplain and Channel Reconnection, Channel Reconstruction, LWD Restoration
	Floodplain Reconnection, LWD Restoration		

Potential Project Areas by Type of Action for Middle Fork Forrest Property  
Map Panel 12

**John Day River  
Tributary Assessments**

Map 69  
May 2008

**RECLAMATION**  
Managing Water in the West

River Miles     Reach Boundaries

Channel (low flow) 2008     Floodplain Boundary

Possible Channel Reconnections

