Appendix G. Detail Information for Watersheds Functioning at Risk

The Watershed Condition Framework is a comprehensive national approach for classifying watershed condition. This is an interdisciplinary process that ranks watersheds according to three watershed condition classes directly related to the degree or level of watershed functionality or integrity. The classes are Class 1, 2, and 3, which equate to Functioning Properly (Good), Functioning at Risk (Fair), and Impaired Function (Poor). Ranking is based on four categories that represent terrestrial, riparian, and aquatic ecosystem processes or mechanisms by which management actions can affect the condition of watersheds and associated resources. This framework has been implemented across the Greater Yellowstone Area, including those units that are not Forest Service, in an effort to consistently manage at the ecosystem level. Data from this analysis can be accessed at http://www.fs.fed.us/publications/watershed/.

The following information is detailed assessment information from the Watershed Condition Framework for the 16 watersheds on the Shoshone that fall in Class 2,"Functioning at Risk." The indicators for the watersheds that are not in the properly functioning range are listed.

Watershed name	Clarks Fork Yellowstone River –Squaw Creek	**code**	100700060106
Total watershed acres:	22,730	**Acres on Forest**:	21,800
Indicators:			
Water quality	ANC ≤ 20 per Gallatin Forest air quality data analysis. Sediment loading in Ghost and Muddy Creeks (upward trend).		
Aquatic habitat – fragmentation (% of stream miles)	>25%		
Aquatic habitat – survey	Squaw Creek impacts for 1988 wildfire		
Aquatic biota – native vs. non-native species	Non-native replaced native		
Road – maintenance	Past due		
Road – proximity to stream (% road within 300 feet of stream)	10–25%		
Roads – on unstable landform	Few		
Soil contamination – nitrogen deposition	Moderate		
Insect epidemic (% of forest land impacted)	>40%		

Watershed name	Upper Pat O'Hara Creek	**code**	100700060504
Total watershed acres:	25,070	**Acres on Forest:**	12,040
Indicators:			
Aquatic biota – native vs. non-native species	Non-native replaced native		
Riparian – condition	<80% PFC		
Road – maintenance	Past due and some structure failure possible		
Road – proximity to stream (% road within 300 feet of stream)	10–25%		
Soil contamination – nitrogen deposition	Moderate		
Fire Regime Condition Class – vegetation	Moderate departure		
Insect epidemic (% of forest land impacted)	>40%		

Watershed name	Brooks Lake Creek	**code**	100800010104
Total watershed acres:	23,200	**Acres on Forest:**	23,200
Indicators:			
Water quality	Brooks Lake Lodge algal blooms. Grazing on West Brooks Lake Creek (Falls Creek). Sediment loads from historical activities on other creeks.		
Aquatic habitat – fragmentation (% of stream miles)	>25%		
Riparian – condition	<80% PFC		
Road – open density (mi/sq. mi)	1–2.4		
Road – maintenance	Past due		
Road – proximity to stream (% road within 300 feet of stream)	10–25%		
Roads – on unstable landform	Most		
Insect epidemic (% of forest land impacted)	>40%		

Watershed name	Wind River-Lava Creek	**code**	100800010105
Total watershed acres:	10,800	**Acres on Forest:**	10,000
Indicators:			
Water quality	Brooks Lake Lodge algal blooms. Sediment loads from historical activities on other creeks.		
Aquatic habitat – survey	Some concern with grazing but <5% of reach lengths. Channel modification on private land.		
Riparian – condition	<80% PFC		
Road – open density (mi/sq. mi)	1–2.4		
Road – maintenance	Past due		
Road – proximity to stream (% road within 300 feet of stream)	10–25%		
Roads – on unstable landform	Most		
Soil contamination – nitrogen deposition	Moderate		
Insect epidemic (% of forest land impacted)	>40%		

Watershed name	Wind River-Crooked Creek	**code**	100800010107
Total watershed acres:	14,800	**Acres on Forest:**	5,580
Indicators:			
Water quality	Brooks Lake Lodge algal blooms. Sediment load in Wind River from private land channel modification.		
Aquatic habitat – survey	Channel modification on private land.		
Aquatic biota – native vs. non-native species	Non-native replaced native		
Riparian – condition	<80% PFC		
Road – open density (mi/sq. mi)	1–2.4		
Road – maintenance	Past due and some structure failure possible		
Road – proximity to stream (% road within 300 feet of stream)	10–25%		
Roads – on unstable landform	Most		
Soil contamination – nitrogen deposition	Moderate		
Insect epidemic (% of forest land impacted)	>40%		

Watershed name	West Fork Long Creek	**code**	100800010108
Total watershed acres:	14,700	**Acres on Forest:**	11,400
Indicators:			
Water quality	Sediment loads from historical activities.		
Aquatic habitat – fragmentation (% of stream miles)	>25%		
Aquatic habitat – survey	Historical, but on upward trend.		
Riparian – condition	<80% PFC		
Road – open density (mi/sq. mi)	1–2.4		
Road – maintenance	Past due and some structure failure possible		
Road – proximity to stream (% road within 300 feet of stream)	10–25%		
Roads – on unstable landform	Few		
Soil contamination – nitrogen deposition	Moderate		
Rangeland – condition	At risk		
Insect epidemic (% of forest land impacted)	>40%		

Watershed name	Lower Warm Spring Creek	**code**	100800010112
Total watershed acres:	15,500	**Acres on Forest:**	13,900
Indicators:			
Water quality	Sediment loads from historical activities.		
Aquatic habitat - fragmentation (% of stream miles)	>25%		
Aquatic biota – native vs. non-native species	Non-native replaced native		
Riparian – condition	<80% PFC		
Road – open density (mi/sq. mi)	1–2.4		
Road – maintenance	Past due		
Road – proximity to stream (% road within 300 feet of stream)	10–25%		
Soil contamination – nitrogen deposition	Moderate		
Insect epidemic (% of forest land impacted)	>40%		

Watershed name	Middle Horse Creek-Wind River	**code**	100800010202
Total watershed acres:	20,100	**Acres on Forest:**	19,800
Indicators:			
Water quantity – flow	Burroughs Creek water transmission line diversion.		
Aquatic habitat – fragmentation (% of stream miles)	>25%		
Aquatic biota – native vs. non-native species	Non-native replaced native		
Road – open density (mi/sq. mi)	1–2.4		
Road – maintenance	Past due		
Road – proximity to stream (% road within 300 feet of stream)	>25%		
Roads – on unstable landform	Most		
Insect epidemic (% of forest land impacted)	>40%		

Watershed name	Lower Horse Creek	**code**	100800010203
Total watershed acres:	13,300	**Acres on Forest:**	2,200
Indicators:			
Aquatic biota – native vs. non-native species	Non-native replaced native		
Riparian – condition	<80% PFC		
Road – open density (mi/sq. mi)	>2.4		
Road – maintenance	Past due		
Road – proximity to stream (% road within 300 feet of stream)	>25%		
Roads – on unstable landform	Few		
Soil contamination – nitrogen deposition	Moderate		
Fire Regime Condition Class – vegetation	Moderate departure		
Rangeland – condition	At risk		
Insect epidemic (% of forest land impacted)	20–40%		

Watershed name	Little Horse Creek	**code**	100800010204
Total watershed acres:	11,500	**Acres on Forest:**	3,280
Indicators:			
Aquatic biota – native vs. non-native species	Non-native replaced native		
Riparian – condition	<80% PFC		
Road – proximity to stream (% road within 300 feet of stream)	>25%		
Roads – on unstable landform	Most		
Soil contamination – nitrogen deposition	Moderate		
Fire Regime Condition Class – vegetation	Moderate departure		
Insect epidemic (% of forest land impacted)	>40%		

Watershed name	Tappan Creek	**code**	100800010205
Total watershed acres:	12,000	**Acres on Forest:**	2,140
Indicators:			
Aquatic biota – native vs. non-native species	Non-native replaced native		
Riparian – condition	<80% PFC		
Road – maintenance	Past due		
Road – proximity to stream (% road within 300 feet of stream)	10–25%		
Roads – on unstable landform	Most		
Soil contamination – nitrogen deposition	Moderate		
Insect epidemic (% of forest land impacted)	>40%		

Watershed name	Willow Creek-Little Popo Agie River	**code**	100800030109
Total watershed acres:	18,900	**Acres on Forest:**	2,570
Indicators:			
Aquatic biota – native vs. non-native species	Non-native replaced native		
Riparian – condition	<80% PFC		
Road – open density (mi/sq. mi)	1–2.4		
Road – maintenance	Past due and some structure failure possible		
Road – proximity to stream (% road within 300 feet of stream)	10–25%		
Soil contamination – nitrogen deposition	Moderate		
Fire Regime Condition Class – vegetation	Moderate departure		
Insect epidemic (% of forest land impacted)	>40%		

Watershed name	Middle North Popo Agie River	**code**	100800030202
Total watershed acres:	27,400	**Acres on Forest:**	12,900
Indicators:			
Water quality	Sediment load from historical activities.		
Aquatic biota – native vs. non-native species	Non-native replaced native		
Riparian – condition	<80% PFC		
Road – maintenance	Past due and some structure failure possible		
Road – proximity to stream (% road within 300 feet of stream)	>25%		
Soil contamination – nitrogen deposition	Moderate		
Insect epidemic (% of forest land impacted)	20–40%		

Watershed name	Sand Creek-Popo Agie River	**code**	100800030203
Total watershed acres:	15,700	**Acres on Forest:**	14,500
Indicators:			
Water quality	Sediment load from historical activities.		
Aquatic habitat - fragmentation (% of stream miles)	>25%		
Aquatic biota – native vs. non-native species	Non-native replaced native		
Riparian – condition	<80% PFC		
Road – maintenance	Past due		
Road – proximity to stream (% road within 300 feet of stream)	>25%		
Soil contamination – nitrogen deposition	Moderate		
Insect epidemic (% of forest land impacted)	20–40%		

Watershed name	Lower Middle Popo Agie River	**code**	100800030207
Total watershed acres:	21,500	**Acres on Forest:**	6,780
Indicators:			
Aquatic biota – native vs. non-native species	Non-native replaced native		
Aquatic biota – aquatic invasive species	Whirling disease and didymo		
Road – open density (mi/sq. mi)	1–2.4		
Road – maintenance	Past due		
Road – proximity to stream (% road within 300 feet of stream)	10–25%		
Roads – on unstable landform	Few		
Soils productivity – impacts of invasives	Significant cheat grass establishment		
Soil contamination – nitrogen deposition	Moderate		
Fire Regime Condition Class – vegetation	Moderate departure		
Terrestrial invasive species	Significant cheat grass establishment		
Insect epidemic (% of forest land impacted)	>40%		

Watershed name	Roaring Fork Creek	**code**	100800030208
Total watershed acres:	18,600	**Acres on Forest:**	17,100
Indicators:			
Water quality	Sediment load from historical activities.		
Water quantity – flow	Worthern and Frye Lake flow disruption.		
Aquatic habitat - fragmentation (% of stream miles)	>25%		
Aquatic biota – native vs. non-native species	Non-native replaced native		
Riparian – condition	<80% PFC		
Road – open density (mi/sq. mi)	1–2.4		
Road – maintenance	Past due and some structure failure possible		
Road – proximity to stream (% road within 300 feet of stream)	10–25%		
Soil contamination – nitrogen deposition	Moderate		
Insect epidemic (% of forest land impacted)	>40%		