

Wilderness Information Needs Assessment (INA)
For the

Cache la Poudre, Comanche Peak, Neota and Rawah Wilderness Areas

Canyon Lakes Ranger District
Arapaho-Roosevelt National Forests and Pawnee National Grassland

January 30, 2012

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Introduction:

This assessment follows the methodology for wilderness information needs assessments as outlined in the June 4, 2007 WO white paper written by Steve Boutcher and approved by the Wilderness Information Management Steering Team. Refer to that document for detailed instructions and background.

The project was initiated at the Canyon Lakes Ranger District by the District Ranger issuing a project initiation letter notifying the resource specialists that were needed for the process. The resource specialists identified were: botanist, archeologist, fisheries biologist, soil scientist, hydrologist, noxious weed specialist, wildlife biologist, fire/fuels planner, and the wilderness manager. The time expected of the team was one day for all specialists and one or two days for those resource areas that were identified as a high priority.

Step 1 - Identify Assessment Area:

The area covered by this assessment includes four wilderness areas –Cache la Poudre, Comanche Peak, Neota and Rawah Wildernesses. These four wilderness areas are on the same Ranger District, but while some share similar biological and physical characteristics not all share the same set of issues. Therefore, a separate significance and information needs matrix was developed for each Wilderness. In order to make the most of the limited funding received for performing the data gathering tasks , a combined significance and information needs matrix was developed during prioritization to identify issues that were a concern in more than one Wilderness.

Step 2 - Identify Issues of Concern and Assign Initial Priority:

An interdisciplinary team was convened to jointly identify the issues of greatest concern for each Wilderness. The team used the significance matrices (Tables 1-4), to determine the highest priority issues. Table 5 is a combined matrix in which the values from Tables 1-4 were averaged to determine overall priorities.

Table 1: Cache la Poudre SIGNIFICANCE MATRIX

(0 = Does Not Occur, 1 = Low significance, 5 = High significance)

		CACHE LA POUFRE POTENTIAL THREATS										
			Recreation	Livestock	Mining	Wildfire	Noxious Weeds	Non-Native Other	Air Pollutants	Adjacent Lands	Agency Mgt. Actions	Illegal Activities
ATTRIBUTES OF WILDERNESS CHARACTER	Untrammeled Quality	Untrammeled Wilderness	2	2	1	1	2	1	1	1	1	1
	Natural Quality	Air	1	1	1	3	1	1	3	1	1	1
		Aquatic Systems	1	1	1 (Check Boundary)	2	2	3	1	3	1	3 (Tree cutting in S. Fork)
		Soils	2	1	1	3	1	1	1	1	1	2
		Vegetation	1	1	1	3	4	1	2	1	1	2
		Wildlife	1	1	1	2	2	1	1	1	1	1
		Ecosystems /Landscapes	1	1	1	3	3	3	1	2 (Watershed issues)	1 (Rx Burn)	1
	Undeveloped Quality	Developments	0	0	0	0	0	0	0	0	0	0
		Cultural Resources	1	1	1	2	1	1	1	1	1	1
	“Outstanding Opportunities” Quality	Opportunities for Solitude or Primitive Recreation	1	1	1	1	1	1	1	1	1	1

Agency Management Actions Note: Prescribed Fire is due to occur in this Wilderness. The intent of the Prescribed Fire is to return the Wilderness to a natural fire regime.

Table 2: Comanche Peak SIGNIFICANCE MATRIX

(1 = Low significance, 5 = High significance)

		COMANCHE PEAK POTENTIAL THREATS										
			Recreation	Livestock	Mining	Wildfire	Noxious Weeds	Non-Native Other	Air Pollutants	Adjacent Lands	Agency Mgt. Actions	Illegal Activities
ATTRIBUTES OF WILDERNESS CHARACTER	Untrammeled Quality	Untrammeled Wilderness	2	2	1	2	2	1	1	2	1	1
	Natural Quality	Air	1	1	1	3	1	1	3	2	1	1
		Aquatic Systems	2	2	1	3	1	3 (Fish)	1	3 (Ability of fish to move upstream)	1	1
		Soils	2	2	1	3	1	1	1	1	1	1
		Vegetation	2	2	1	3	4	1	2	1	1	1
		Wildlife	2	1	1	2	2	1	1	1	1	1
		Ecosystems /Landscapes	2	2	1	3	3	3 (Fish)	1	3	1	1
	Undeveloped Quality	Developments	3	1	1	3	1	1	1	1	2	1
		Cultural Resources	2	1	1	2	1	1	1	1	1	1
	"Outstanding Opportunities " Quality	Opportunities for Solitude or Primitive Recreation	3 (Use)	2	1	1	1	1	1	2	2	1

Comanche Peak has travel zones and designated campsites.

Table 3: Neota SIGNIFICANCE MATRIX

(0 = Does Not Occur, 1 = Low significance, 5 = High significance)

		NEOTA POTENTIAL THREATS										
			Recreation	Livestock	Mining	Wildfire	Noxious Weeds	Non-Native Other	Air Pollutants	Adjacent Lands	Agency Mgt. Actions	Illegal Activities
ATTRIBUTES OF WILDERNESS CHARACTER	Untrammeled Quality	Untrammeled Wilderness	1	0	1	1	1	1	1	1	1	1
	Natural Quality	Air	1	0	1	2	1	1	3	1	1	2 (Snow mobile)
		Aquatic Systems	2	0	1	2	1	1	1	2	3 *Rotenone	1
		Soils	1	0	1	2	1	1	1	1	1	1
		Vegetation	1	0	1	2	2	2	1	1	2	1
		Wildlife	1	0	1	1	1	1	1	1	2 *Potential to kill beavers	1
	Undeveloped Quality	Developments	0	0	0	0	0	0	0	0	0	0
		Cultural Resources	1	0	1	1	1	1	1	1	1	1
	"Outstanding Opportunities" Quality	Opportunities for Solitude or Primitive Recreation	1	0	1	1	1	1	1	1	1	2

* Agency Management Actions Note: Long Draw EIS decision to extirpate non-native fish in Neota Creek and Corral Creek.

Table 4: Rawah SIGNIFICANCE MATRIX

(1 = Low significance, 5 = High significance)

		RAWAH POTENTIAL THREATS										
			Recreation	Livestock	Mining	Wildfire	Noxious Weeds	Non-Native Other	Air Pollutants	Adjacent Lands	Agency Mgt. Actions	Illegal Activities
ATTRIBUTES OF WILDERNESS CHARACTER	Untrammeled Quality	Untrammeled Wilderness	2	1	1	1	2	1	1	3	1	1
	Natural Quality	Air	1	1	1	3	1	1	2	1	1	1
		Aquatic Systems	2	1	1	3	1	4	1	3	1	1
		Soils	2	1	1	3	1	1	1	1	1	1
		Vegetation	2	1	1	4	3	1	1	2	1	1
		Wildlife	2	1	1	2	2	1	1	1	1	1
		Ecosystems /Landscapes	2	1	1	3	2	4	1	2	1	1
	Undeveloped Quality	Developments	1	1	1	1	1	1	1	1	1	1
		Cultural Resources	1	1	1	1	1	1	1	1	1	1
	"Outstanding Opportunities" Quality	Opportunities for Solitude or Primitive Recreation	1	1	1	1	1	1	1	1	1	1

Rawah Wilderness has an Alpine Closure to campfires and a camping and campfire closure around Blue Lake.

Rawah Wilderness is the districts' only Class 1 Airshed wilderness.

Table 5: Combined Significance Matrix

		COMBINED POTENTIAL THREATS											
			Recreation	Livestock	Mining	Wildfire	Noxious Weeds	Non-Native Other	Air Pollutants	Adjacent Lands	Agency Mgt. Actions	Illegal Activities	
ATTRIBUTES OF WILDERNESS CHARACTER	Untrammeled Quality	Untrammeled Wilderness	1.75	1.25	1.00	1.25	1.75	1.00	1.00	1.75	1.00	1.00	12.75
	Natural Quality	Air	1.00	0.75	1.00	2.75	1.00	1.00	2.75	1.25	1.00	1.25	13.75
		Aquatic Systems	1.75	1.00	1.00	2.50	1.25	2.75	1.00	2.75	1.50	1.50	17.00
		Soils	1.75	1.00	1.00	2.75	1.00	1.00	1.00	1.00	1.00	1.25	12.75
		Vegetation	1.50	1.00	1.00	2.50	2.75	1.00	1.50	1.00	1.00	1.25	14.50
		Wildlife	1.50	0.75	1.00	2.25	2.00	2.00	1.00	1.25	1.25	1.00	14.00
		Ecosystems /Landscapes	1.50	1.00	1.00	2.75	2.25	2.75	1.00	2.00	1.25	1.00	16.50
		Developments	1.25	0.50	0.75	1.50	0.75	0.75	0.75	0.75	0.75	1.25	0.75
	Undeveloped Quality	Cultural Resources	1.25	0.75	1.00	1.50	1.00	1.00	1.00	1.00	1.00	1.00	10.50
	"Outstanding Opportunities" Quality	Opportunities for Solitude or Primitive Recreation	1.00	0.75	0.50	0.50	0.50	0.50	0.50	0.75	0.75	0.50	6.25
			14.25	8.75	9.25	20.25	14.25	13.75	11.50	13.50	11.00	10.50	

This colorized chart also shows the greater potential threats in red, and those viewed as lesser threats in green.

Based on the information in Table 5 and Appendix A, the four areas with the highest needs are aquatic systems, ecosystems/landscapes, vegetation and wildlife. The program areas that will need to deal with these greater threats to the Wildernesses on the Canyon Lakes Ranger District are Fire, Recreation, Noxious Weeds, and Fisheries. Table 6 presents a brainstorming list of the specific information needs of each of these program areas.

Table 6: Brainstorming list

Issue / Information Need	Responsibilities
Cache la Poudre Post-burn Surveys	ALL
Cache la Poudre Pre-burn Surveys	ALL
Aquatic Invasive Species Survey	Fisheries Biologist
Aquatic Surveys on Adjacent Lands	Fisheries Biologist
Creel Surveys	Fisheries Biologist
Lake Biotic Integrity	Fisheries Biologist
South Fork Cache la Poudre Stream-side damage	Fisheries Biologist
Stream Biotic Integrity	Fisheries Biologist
Noxious Weed Surveys (Non- Recreation – watershed-wide)	Noxious Weed Specialist
Noxious Weed Surveys (Recreation – along trails)	Noxious Weed Specialist
Range Condition Surveys (Cache la Poudre & Comanche Peak)	Rangeland Management Specialist
Range Feature Identification/Location	Rangeland Management Specialist
Riparian Surveys for effects from Grazing	Rangeland Management Specialist
Mass Wastage Site Identification and Location	Soils Scientist
Trail Surveys (all)	Trail Manager
Campsite Monitoring	Wilderness Manager
Encounter Monitoring	Wilderness Manager
Required Registration	Wilderness Manager
Boreal Toad/ Sensitive Amphibians Surveys (Cache la Poudre, Comanche Peak, & Neota)	Wildlife Biologist
Fence Removal (Cache la Poudre, Comanche Peak, Rawah)	Wildlife Biologist
Lynx Surveys	Wildlife Biologist
Preble’s Jumping Mouse Surveys (Cache la Poudre)	Wildlife Biologist
Ptarmigan Surveys	Wildlife Biologist
Wolverine Surveys	Wildlife Biologist

The Interdisciplinary Team narrowed down the brainstorming list to what was considered the top issues with regards to significance. Table 7 contains the seven concerns the team chose. They are not listed in order of priority.

Table 7: Significant Issues

Resource	Threat	Notes
Vegetation / Ecosystem/Aquatic /Soils	Wildfire	Lack of information of fuel loading within wilderness is a major data gap for other program areas to help them fill in their data gaps and have a better estimate of threats to their resource.
Aquatic Systems	Non-Native Other / Agency Mgt Actions/ Adjacent Lands	Surveys are needed to determine which waterways that are crossed by roads (agency or on adjacent lands) have culverts to allow native fish to pass through and into wilderness.
Vegetation /Ecosystem	Noxious Weeds	Only one Wilderness (Neota) has had a preliminary survey for weeds done. All Wildernesses need to have comprehensive surveys done.
Opportunities for Solitude or Primitive Recreation	Recreation	While only Comanche Peak had a high threat rating, it was determined that having better information of use numbers and travel patterns in all wildernesses would help the biological specialists determine and project trends on their resources within wilderness.
Cultural Resources	Wildfire/ Recreation	Cultural inventories are not done for known locations within wilderness that may be lost if a wildfire were to occur at those locations or recreationists disturb the sites.
Aquatic / Soils/ Vegetation / Wildlife	Recreation	The lack of information on the extent and significance of human impacts on these resources specialists felt needed further information.
Ecosystems / Untrammeled	Adjacent Lands	Lack of knowledge of what adjacent land owners are doing from their lands into wilderness (i.e. building trails, harvesting products or illegal activities).

Step 3 – Define Information Needs for Priority Issues:

The next step was to take this list of the top seven significant issues and apply it to the Information Needs Matrix. Table 8 compares the level of information available/needed about each of the issues. In other words, how comfortable are we about the information we have or don't have for each wilderness characteristic and each attribute. As an example we have very little information on the characteristic of vegetation with the issue of wildfire; thus our need is high to get more information based on the low amount of information we currently have and that that attribute/issue combination was rated as high by specialists.

Table 8: INFORMATION NEEDS MATRIX, 1 = Low info needs, 5 = High info needs

		Information Needs									
ATTRIBUTES OF WILDERNESS CHARACTER		Recreation	Livestock	Mining	Wildfire	Noxious Weeds	Non-Native Other	Air Pollutants	Adjacent Lands	Agency Mgt. Actions	Illegal Activities
	Untrammeled Wilderness	3	2	1	3	3	2	2	2	2	2
	Air	3	1	1	2	1	1	2	2	2	1
	Aquatic Systems	2	2	1	5	2	4	1	4	2	2
	Soils	2	2	2	5	2	2	2	2	3	2
	Vegetation	2	1	2	5	3	2	2	2	2	2
	Wildlife	2	2	1	2	2	3	1	2	2	2
	Ecosystems /Landscapes	3	2	2	5	4	2	2	3	2	1
	Developments	1	2	2	2	2	1	1	2	2	3
	Cultural Resources	3	2	2	3	1	1	1	2	2	3
	Opportunities for Solitude or Primitive Recreation	3	1	1	1	1	1	1	3	3	3

Those in **BOLD** relate to the narrowed significant issues.

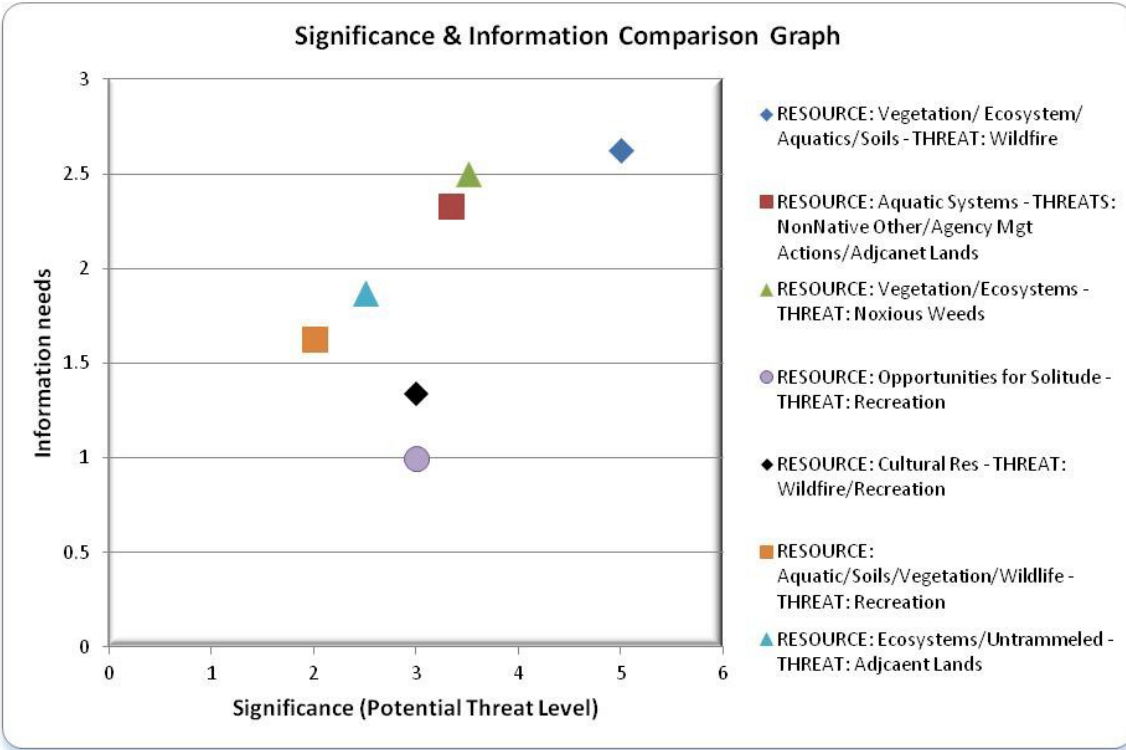
Step 4 – Comparison of the Significance and Information Need scores:

Next the combined significance scores and the information needs scores are combined (Table 9) and compared to assess which threats should be considered the highest priorities. Significance and Info Need scores were averaged from the numbers in Step 3 above.

Table 9: Combined significance and information needs scores

Resource	Threat	Significance	Info Need
Vegetation / Ecosystem/Aquatic /Soils	Wildfire	2.625	5
Aquatic Systems	Non-Native Other / Agency Mgt Actions/ Adjacent Lands	2.33	3.33
Vegetation /Ecosystem	Noxious Weeds	2.5	3.5
Opportunities for Solitude or Primitive Recreation	Recreation	1	3
Cultural Resources	Wildfire/ Recreation	1.37	3
Aquatic / Soils/ Vegetation / Wildlife	Recreation	1.625	2
Ecosystems / Untrammeled	Adjacent Lands	1.87	2.5

The following chart depicts the results graphically.



Step 5 – Prioritization List

The District Ranger and the recreation staff worked together to develop a numerical rank for each of the seven information needs (Table 10). This was accomplished with two objectives in mind. First, to look at the needs of the wildernesses as a whole, not as a champion of a single resource; and second to determine what we could reasonably expect to accomplish given the foreseeable budget situation. The numerical values assigned above for significance and information needs was revisited to determine if there had been any omissions or if any of the scores should be adjusted, especially relative to the other scores if one seemed out of balance with how the others had been evaluated. We also considered what was the risk associated with each issue; if we didn’t address an issue, what would happen? How did it relate to the other issues? Would it be better to do one before another?

While we will strive to follow the prioritized list and get the important projects accomplished first, there is the leeway needed to be flexible with the order due to the variations in where and how the money comes in. Efforts will be made to economize and partner (internal and external) to make the funding spread as far as possible.

It is recognized that the priority ranking will need to be revisited each year. Changes are expected to occur with the status of threats (i.e. an invasive species moves into the wilderness thereby raising the significance) or the information needs may change (i.e. data is gathered the previous year that improves the knowledge base for a resource).

Table 10: PRIORITY TABLE

Priority	Resource	Threat
1	Vegetation / Ecosystem/Aquatic /Soils	Wildfire
2	Vegetation /Ecosystem	Noxious Weeds
3	Aquatic Systems	Non-Native Other / Agency Mgt Actions/ Adjacent Lands
4	Cultural Resources	Wildfire/ Recreation
5	Aquatic / Soils/ Vegetation / Wildlife	Recreation
6	Ecosystems / Untrammeled	Adjacent Lands
7	Opportunities for Solitude or Primitive Recreation	Recreation

Step 6 – Worksheet

Wilderness Information Needs Assessment Worksheet has been filled out for each of the top critical issues. (See Appendix A.) This detailed information will provide specifics on what work is needed for the issue, as well as the funding estimates.

Step 7 – Plan of Work

A plan of work has been completed to schedule needed work for the next five years (Table 11). It will be revisited annually in the late fall for updates and additions.

Table 11: PLAN OF WORK SCHEDULE

Priority Rank	Issue / Information Need	Threat(s)	Specific Work Item(s)	Cost Estimate	Fund Sources	Timing / Dependencies	Responsibilities
1	Vegetation / Ecosystem/ Aquatic /Soils	Wildfire	Field surveys	\$25,000	WFPR, NFIM	summer	Silviculturalist, Wilderness Mgr.
2	Vegetation /Ecosystem	Noxious Weeds	Field surveys	\$36,000	NFVW, NFRW	Snow-free season	Noxious Weed Mgr.
3	Cultural Resources	Wildfire/ Recreation	Field surveys	\$15,000	NFRW	Snow-free season	Archeologist
4	Aquatic Systems	Non-Native Other/ Agency Mgt Actions/ Adjacent Lands	Field surveys	\$5,000	NFIM	Snow-free season	Fisheries Biologist
5	Aquatic / Soils/ Vegetation / Wildlife	Recreation	Field surveys	\$163,350	Multi.	Snow-free season	All Specialists
6	Ecosystems / Untrammeled	Adjacent Lands	Field surveys	\$5,000	NFRW	Snow-free season	Wilderness Mgr.
7	Opportunities for Solitude or Primitive Recreation	Recreation	Required Registr.	\$9,500 /year	NFRW	Year-round	Wilderness Mgr.

Appendix A

Wilderness Information Needs Assessment Worksheets by Priority Listing

Priority 1 – Concentrations of unnaturally high fuel loads.

Issue: Vegetation / Ecosystem/ Aquatic /Soils **Threat:** Wildfire

Natural Quality - Ecosystem

Wilderness Name:	<i>Cache la Poudre, Comanche Peak, Rawah, Neota</i>
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision-making process?</i>
	Concentrations of unnaturally high fuel loads
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Natural Quality/Untrammelled - Ecosystem
Question:	<i>What are the question(s) you need to address?</i>
	What are our current fuel loads within wilderness? What are our natural barriers that would affect fire behavior?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Data would be similar to current stand exams performed outside of wilderness. More emphasis on fuel loading and vegetative composition.
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	Modified stand exam protocol.
Database:	<i>What database will this data be entered into?</i>
	Forest Service fire database similar to BEHAVE and FIREPLAN
Analysis Protocol:	<i>What analytical methods will be used?</i>
	Fire modeling
Information Products:	<i>What information products will be generated?</i>
	Fuel load GIS layer, map of natural barriers, helispot locations, water locations.
Information Use:	<i>How will this information be used?</i>
	To craft fire plan(s) and/or implementation plans. Also could be used for revision of Forest Plan.
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Fire, Silviculture, Wilderness
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	WFPR - \$25,000 for contractor to do exams covering approximately 400 points.

Other:	<i>What else would be helpful to know about this information need?</i>
	This information relates to many other data gaps for other specialists and would ground truth information in GIS.

Priority 2 – Biotic integrity of terrestrial ecosystems from nonnative/invasive plants.

Issue: Vegetation /Ecosystem

Threat: Noxious Weeds

Natural Quality - Vegetation

Wilderness Name:	Cache la Poudre, Comanche Peak, Neota and Rawah
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Biotic integrity of terrestrial ecosystems from nonnative/invasive plants (more specifically, noxious weeds as defined by the State of Colorado.
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Natural Quality (vegetation, ecosystems, habitat)
Question:	<i>What are the question(s) you need to address?</i>
	<ul style="list-style-type: none"> • Where are the existing noxious weeds within the Wilderness areas? • How big, and what are the trends, of noxious weed populations? • What is the appropriate management response?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	<ul style="list-style-type: none"> • Surveys targeting recreation areas (trails, campsites, hunting parks, etc) • Surveys targeting non-recreation areas (priority watersheds, riparian areas, etc)
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	USDA Forest Service National Forest System Invasive Species Program Invasive Species Inventory and Mapping Data Recording Protocols: Data Recording Protocols for Invasive Species Management (Inventory and Mapping) Version: April 1, 2008.
Database:	<i>What database will this data be entered into?</i>
	NRIS
Analysis Protocol:	<i>What analytical methods will be used?</i>
	GIS
Information Products:	<i>What information products will be generated?</i>
	GIS data/layers/maps.
Information Use:	<i>How will this information be used?</i>
	Determine priorities, planning for out-year treatment

Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Coordinate with Botany for any rare plant overlap, coordinate with Recreation for site information
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	Each individual Wilderness: Surveys: 2 GS-4/5 for 20 days: \$5000, 1 GS-9/11 for 3 days= \$1000 Supplies/vehicle \$1000, Database entry/Analysis/GIS: \$2000 Total per Wilderness: \$9000
Other:	<i>What else would be helpful to know about this information need?</i>
	<p>Knowledge of noxious weeds in CLRD wilderness is not well known, but infestations are thought to be fairly limited. Confirmation of this belief is critical to planning for district-wide treatment priorities and prevention techniques.</p> <p>This project could be combined with the abandoned range improvements surveys to increase efficiency of resources, as both range and weed programs are managed together. Noxious weed surveys can be coordinated to search in areas proximal to historically documented range improvement sites, and undocumented fences can be located and inventoried as found while conducting noxious weed surveys.</p>

Priority 3 – Loss of cultural resources.

Issue: Cultural Resources

Threat: Wildfire / Recreation

Undeveloped Quality – Cultural Resources

Wilderness Name:	<i>Cache la Poudre, Comanche Peak, Rawah, Neota</i>
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Loss of cultural resources
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Undeveloped Quality – Cultural Resources
Question:	<i>What are the question(s) you need to address?</i>
	Are there any cultural resources within our wildernesses in danger of being lost due to wildfire or recreation activities?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Cultural resource surveys.
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	SHPO (State Historical Preservation Office) approved Protocol.
Database:	<i>What database will this data be entered into?</i>
	InfraHERITAGE
Analysis Protocol:	<i>What analytical methods will be used?</i>
	InfraHERITAGE, GIS
Information Products:	<i>What information products will be generated?</i>
	Cultural resources map.
Information Use:	<i>How will this information be used?</i>
	Cultural resources map to be used when fires occur.
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Heritage, Wilderness
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	NFRW – Utilize paid staff to perform surveys of known and highly probable locations. Cost - \$15,000
Other:	<i>What else would be helpful to know about this information need?</i>

Priority 4 – Loss of fish passage through and into wilderness.

Issue: Aquatic Systems

Threat: Non-Native Other/ Agency Mgt Actions/ Adjacent Lands

Natural Quality – Aquatics

Wilderness Name:	<i>Cache la Poudre, Comanche Peak, Rawah, Neota</i>
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Loss of fish passage through and into wilderness
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Natural Quality – Aquatics
Question:	<i>What are the question(s) you need to address?</i>
	Which road culverts need to be modified to allow for fish passage?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Surveys are needed to determine which waterways that are crossed by roads (agency or on adjacent lands) have culverts to allow native fish to pass through and into wilderness.
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
Database:	<i>What database will this data be entered into?</i>
	NRIS, InfraROADS
Analysis Protocol:	<i>What analytical methods will be used?</i>
	N/A
Information Products:	<i>What information products will be generated?</i>
	List of culverts to be replaced or modified to allow for fish passage.
Information Use:	<i>How will this information be used?</i>
	Target priority culverts for work.
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Fisheries, Engineering
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	CMRD/ Fisheries – Cost \$5,000 to survey culverts.
Other:	<i>What else would be helpful to know about this information need?</i>

Priority 5 – Affect of Recreation Use on physical and biological resources.

Issue: Aquatic / Soils/ Vegetation / Wildlife

Threat: Recreation

Natural Quality – Non-Native Other

Wilderness Name:	Cache la Poudre, Comanche Peak, Neota and Rawah
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Aquatic Invasive species
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Natural Quality
Question:	<i>What are the question(s) you need to address?</i>
	What and where are there aquatic invasive species in the wilderness areas? What management activities are occurring in the wildernesses that have potential to spread invasives?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Field surveys of lakes and stream in the wilderness areas.
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	Presence/absence surveys
Database:	<i>What database will this data be entered into?</i>
	Forest Service
Analysis Protocol:	<i>What analytical methods will be used?</i>
	Presence/absence surveys
Information Products:	<i>What information products will be generated?</i>
	Map and report of occurrences of aquatic invasives.
Information Use:	<i>How will this information be used?</i>
	To minimize the spread of aquatic invasives.
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Hydrology, fisheries, recreation, lands
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	20 days for surveys plus crew time, \$20,000??
Other:	<i>What else would be helpful to know about this information need?</i>
	This information would help to control the spread of invasives by recreation and fire activities.

Natural Quality - Aquatic

Wilderness Name:	Cache la Poudre, Comanche Peak, Neota and Rawah
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Biotic Integrity of aquatic ecosystems
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Natural Quality
Question:	<i>What are the question(s) you need to address?</i>
	What is the biotic integrity of streams and lakes within each wilderness area? Where do rare invertebrate species occur in the wilderness areas.
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Field surveys of lakes and streams in the wilderness areas.
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	Macroinvertebrate sampling
Database:	<i>What database will this data be entered into?</i>
	Forest Service
Analysis Protocol:	<i>What analytical methods will be used?</i>
	Index of biotic integrity using industry standards
Information Products:	<i>What information products will be generated?</i>
	Map of rare species and report of biotic integrity.
Information Use:	<i>How will this information be used?</i>
	To protect rare species and use as a reference for the rest of the Forest.
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Hydrology, fisheries
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	20 days for surveys plus crew time, lab time: \$30,000
Other:	<i>What else would be helpful to know about this information need?</i>

Natural Quality - Wildlife

Wilderness Name:	<i>Comanche Peak, Rawah, Neota</i>
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Presence/distribution of boreal toad (also wood frog and northern leopard frog) on the Canyon Lakes Ranger District. If so, is chytrid fungus present?
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Natural Quality - Animals
Question:	<i>What are the question(s) you need to address?</i>
	Are there existing populations of these species in the wilderness areas, and is chytrid fungus present?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Amphibian surveys for these 3 species, and buccal swab samples from amphibians encountered to test for chytrid fungus presence.
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	Standard amphibian surveys in potential aquatic breeding habitat, and buccal swab samples for chytrid fungus testing, per Colorado Division of Parks and Wildlife (CDPW) protocols.
Database:	<i>What database will this data be entered into?</i>
	Forest Service database – NRIS Wildlife
Analysis Protocol:	<i>What analytical methods will be used?</i>
	Population trend information over time for any amphibian populations detected, and continued testing for chytrid fungus.
Information Products:	<i>What information products will be generated?</i>
	Entry in to FS corporate wildlife database – NRIS Wildlife. Also, submission of data to CDPW for annual boreal toad report.
Information Use:	<i>How will this information be used?</i>
	Added to existing distribution knowledge of these sensitive species, and included in CDPW annual boreal toad report for this state-listed species.
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	N/A

Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	35 days GS-5, 7 days GS-11, supplies/vehicle costs. Approximately \$9,000 for one survey season. For trend and monitoring information, would need multiple years.
Other:	<i>What else would be helpful to know about this information need?</i>
	These 3 amphibian species are listed as sensitive in FS R2. There is no location information for these species in any CLRD wilderness area, and there has been no formal survey in the wilderness areas for these species. All 3 species are declining or rare in occurrence on the Forest and/or in Colorado, possibly due to chytrid fungus and potentially other habitat impact factors.

Natural Quality - Vegetation

Wilderness Name:	<i>Cache la Poudre, Comanche Peak, Rawah, Neota</i>
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Where are the rare plants?
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Natural Quality - Vegetation
Question:	<i>What are the question(s) you need to address?</i>
	Where are the rare plants that require protection and what is the best method to protect them?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Survey all high probability locations, and a percentage of moderate and low probability locations to ascertain likelihood of rare plant locations.
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	Standard botany survey protocols.
Database:	<i>What database will this data be entered into?</i>
	NRIS
Analysis Protocol:	<i>What analytical methods will be used?</i>
	GIS modeling
Information Products:	<i>What information products will be generated?</i>
	GIS layer of sensitive locations
Information Use:	<i>How will this information be used?</i>
	1) Allow informed decisions and project analyses to avoid or mitigate potential adverse impacts to rare plants from other use conflicts, 2) help determine management options to maintain this component of wilderness biological diversity, 3) add to our knowledge of wilderness as valuable refugia for rare plants.
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Botany, Wilderness
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	NFVW - \$84,500 (over a 3 year period for all wildernesses) which includes pre-field review, planning and three seasons of surveys for crew and/or contractor.

Other:	<i>What else would be helpful to know about this information need?</i>

Natural Quality - Ecosystem

Wilderness Name:	Cache la Poudre, Comanche Peak, Neota and Rawah
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Mass wasting site identification
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Natural Quality
Question:	<i>What are the question(s) you need to address?</i>
	What is the potential for wilderness activities to influence mass wasting?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Identification of potential mass wasting sites on aerial photos.
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	Photo interpretation/stereoscope, LIDAR
Database:	<i>What database will this data be entered into?</i>
	Forest Service
Analysis Protocol:	<i>What analytical methods will be used?</i>
	Locate on photos and in field, determine threat level
Information Products:	<i>What information products will be generated?</i>
	Map and data for landslide and debris flow hazards
Information Use:	<i>How will this information be used?</i>
	To guide restoration activities
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Hydrology, fisheries, soils, recreation, lands
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	6 days of each specialist's time, possibly crew time, \$12,000?? LIDAR would be additional cost=\$20,000
Other:	<i>What else would be helpful to know about this information need?</i>
	Displaying high erosion potential areas.

Natural Quality - Wildlife

Wilderness Name:	<i>Comanche Peak, Rawah, Neota</i>
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Presence/distribution of white-tailed ptarmigan on the Canyon Lakes Ranger District.
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Natural Quality - Wildlife
Question:	<i>What are the question(s) you need to address?</i>
	What is the status of ptarmigan populations in the wilderness areas?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Ptarmigan surveys, and/or ptarmigan sighting report cards made available at trailheads for public to return.
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	Standard ptarmigan surveys in potential alpine habitat. Also, develop ptarmigan sighting cards or reporting information made available at trailheads for the public to report sightings.
Database:	<i>What database will this data be entered into?</i>
	Forest Service database – NRIS Wildlife
Analysis Protocol:	<i>What analytical methods will be used?</i>
	Population distribution and size information detected/reported for ptarmigan.
Information Products:	<i>What information products will be generated?</i>
	Entry in to FS corporate wildlife database – NRIS Wildlife.
Information Use:	<i>How will this information be used?</i>
	Added to existing distribution knowledge of this sensitive species
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	N/A
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	Sighting card and poster preparation, holders, and distribution: 20 days GS-5 = \$3000, 5 days GS-11 = \$1850, Surveys – 10 days GS-5 = \$1500, misc. supplies and vehicle = \$1500. Total approximately \$7850 for one season. For trend and monitoring information, would need multiple years.

Other:	<i>What else would be helpful to know about this information need?</i>
	White-tailed ptarmigan is listed as sensitive in R2. Little or no distribution or population information is known for Canyon Lakes Ranger District. Some recent concern that this is a species, as with pika, that could be adversely affected by climate change impacts to alpine habitat.

Priority 6 – Activities from adjacent land owners impacting wilderness character.

Issue: Ecosystems / Untrammeled

Threat: Adjacent Lands

Untrammeled Quality - Untrammeled

Wilderness Name:	<i>Cache la Poudre, Comanche Peak, Rawah, Neota</i>
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Activities from adjacent land owners impacting wilderness character.
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Untrammeled Quality - Untrammeled
Question:	<i>What are the question(s) you need to address?</i>
	Are activities from adjacent land owners impacting our wildernesses?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Survey and report on all activities from adjacent lands onto wilderness.
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	Varied, but mostly observation and note-taking.
Database:	<i>What database will this data be entered into?</i>
	The appropriate tool for what is found.
Analysis Protocol:	<i>What analytical methods will be used?</i>
	Variable
Information Products:	<i>What information products will be generated?</i>
	A list of threats from adjacent lands.
Information Use:	<i>How will this information be used?</i>
	Corrective action to be taken where possible. Warning letters to adjacent land owners to cease activities. Possible legal action.
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Wilderness and other specialists depending on what is found.
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	NFRW – Utilize mostly paid staff to examine boundaries between wilderness and adjacent land owners. Cost – \$5,000 (4 weeks of Wilderness Managers time).
Other:	<i>What else would be helpful to know about this information need?</i>

Untrammeled – Adjacent Lands

Wilderness Name:	Rawah
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Diamond Tail Ranch Ditch/fence issue
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Untrammeled/Natural quality/undeveloped quality – Adjacent Lands
Question:	<i>What are the question(s) you need to address?</i>
	Fence was inadvertently placed in wilderness
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Survey to verify
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	Survey
Database:	<i>What database will this data be entered into?</i>
	LSRS (Land Status Record System)
Analysis Protocol:	<i>What analytical methods will be used?</i>
	N/A
Information Products:	<i>What information products will be generated?</i>
	Determine extent of fence in wilderness
Information Use:	<i>How will this information be used?</i>
	Make decision to move fence
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Wilderness, Survey
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	NFRW/NFLM
Other:	<i>What else would be helpful to know about this information need?</i>

Undeveloped – Adjacent Lands

Wilderness Name:	Rawah
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Nellie Ditch (under Ditch Bill Easement)
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Natural quality/undeveloped quality – Adjacent Lands
Question:	<i>What are the question(s) you need to address?</i>
	Is the ditch being administered to standard according to the O&M plan?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Review file and SUDS database; conduct an inspection
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	N/A
Database:	<i>What database will this data be entered into?</i>
	SUDS
Analysis Protocol:	<i>What analytical methods will be used?</i>
	N/A
Information Products:	<i>What information products will be generated?</i>
	Updated database and map
Information Use:	<i>How will this information be used?</i>
	By Permit administrator and Wilderness manager
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	None unless found to be deficient
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	¼ of a day NFLM/NFRW
Other:	<i>What else would be helpful to know about this information need?</i>

Undeveloped Quality - Developments

Wilderness Name:	Rawah
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Skyline Ditch 1891 Easement – Water Supply and Storage Co.
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Natural quality/undeveloped quality
Question:	<i>What are the question(s) you need to address?</i>
	There may be proposal to move a portion of ditch into wilderness – what effects will this have?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Application from WSSC - alternatives
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	Application
Database:	<i>What database will this data be entered into?</i>
	SUDS
Analysis Protocol:	<i>What analytical methods will be used?</i>
	N/A
Information Products:	<i>What information products will be generated?</i>
	Analysis of application
Information Use:	<i>How will this information be used?</i>
	Analyze whether there is a need to move part of the ditch
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	None unless found to be deficient
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	NFRW/NFLM (cost recovery)
Other:	<i>What else would be helpful to know about this information need?</i>

Priority 7 – Recreation activities impacting the opportunities for solitude.

Issue: Opportunities for Solitude or Primitive Recreation **Threat:** Recreation

Outstanding Opportunities Quality - Opportunities for Solitude

Wilderness Name:	<i>Cache la Poudre, Comanche Peak, Rawah, Neota</i>
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Condition of campsites
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Outstanding Opportunities Quality - Opportunities for Solitude
Question:	<i>What are the question(s) you need to address?</i>
	What are our current campsite conditions and how do they affect wilderness character?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Information to ascertain the condition of campsites within wilderness.
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	Modified Cole (CLRD Wilderness Campsite Monitoring Protocol)
Database:	<i>What database will this data be entered into?</i>
	InfraWILD
Analysis Protocol:	<i>What analytical methods will be used?</i>
	InfraWILD, GIS
Information Products:	<i>What information products will be generated?</i>
	More accurate GIS campsite layer, identification of campsites for rehabilitation, maintenance or decommissioning.
Information Use:	<i>How will this information be used?</i>
	Information will be used to manage solitude aspects as it relates to campsites.
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Wilderness
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	NFRW – Annually perform surveys on 20% of campsites. Utilize mostly volunteers; paid staff will need to analyze and input data into database. Cost - \$2,500/year.
Other:	<i>What else would be helpful to know about this information need?</i>

Outstanding Opportunities Quality - Opportunities for Solitude

Wilderness Name:	<i>Cache la Poudre, Comanche Peak, Rawah, Neota</i>
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Loss of Solitude by encountering too many people
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Outstanding Opportunities Quality - Opportunities for Solitude
Question:	<i>What are the question(s) you need to address?</i>
	What is our current parties per hour encountered within each wilderness?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Information to ascertain the current parties per hour encountered within each wilderness.
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	CLRD Wilderness Encounter Monitoring Protocol
Database:	<i>What database will this data be entered into?</i>
	InfraWILD
Analysis Protocol:	<i>What analytical methods will be used?</i>
	InfraWILD, GIS
Information Products:	<i>What information products will be generated?</i>
	Forest Plan monitoring (FP Ch. 3, p. 334)
Information Use:	<i>How will this information be used?</i>
	Information will be used to manage solitude aspects as it relates to encounters between parties.
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Wilderness
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	NFRW – Utilize mostly trained volunteers; paid staff will need to analyze and input data into database. Cost - \$2,500/year.
Other:	<i>What else would be helpful to know about this information need?</i>

Outstanding Opportunities Quality - Opportunities for Solitude

Wilderness Name:	<i>Cache la Poudre, Comanche Peak, Rawah, Neota</i>
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Loss of Solitude by encountering too many people
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Outstanding Opportunities Quality - Opportunities for Solitude
Question:	<i>What are the question(s) you need to address?</i>
	How many people do we have utilizing our wildernesses?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Needs are registration boxes, registration forms, people trained to collect the forms, and a system to ensure boxes are regularly maintained.
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	GPO approved hang-tag (Wilderness Use Permit).
Database:	<i>What database will this data be entered into?</i>
	InfraWILD – Visitor Use Program
Analysis Protocol:	<i>What analytical methods will be used?</i>
	InfraWILD, GIS
Information Products:	<i>What information products will be generated?</i>
	Forest Plan monitoring (FP Ch. 3, p. 333)
Information Use:	<i>How will this information be used?</i>
	Information will be used to direct management in relation to use of the wildernesses.
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Wilderness
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	NFRW – Utilize mostly trained volunteers; paid staff will need to analyze and input data into database. Cost – Permits - \$3,500/year; Maintenance of signing and registration boxes - \$1,500/year; collection of permits - \$500/year; data input and analysis \$4,000/year.
Other:	<i>What else would be helpful to know about this information need?</i>

Appendix B

Wilderness Information Needs Assessment Worksheets from Brainstorming Session, but not selected in the Priority List

Untrammeled/Natural Quality - Ecosystems

Wilderness Name:	Cache la Poudre
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Impacts to riparian areas, watershed resources from Rx fire.
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Untrammeled quality, Natural Quality
Question:	<i>What are the question(s) you need to address?</i>
	What are the pre and post fire conditions of streams and wetlands in the proposed burn area?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Riparian, wetland surveys within proposed burn.
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	Photo point monitoring of several points within burn area 4 100 meter reaches, habitat and large wood surveys
Database:	<i>What database will this data be entered into?</i>
	Forest Service
Analysis Protocol:	<i>What analytical methods will be used?</i>
	Comparison of before and after photos and data
Information Products:	<i>What information products will be generated?</i>
	Report of changes due to Rx fire.
Information Use:	<i>How will this information be used?</i>
	To assist with future burn planning in wilderness.
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Range, fisheries, botany, hydrology
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	10 days of each specialist's time, possibly crew time, \$20,000??
Other:	<i>What else would be helpful to know about this information need?</i>

Outstanding Opportunities - Opportunities for Solitude

Wilderness Name:	Comanche
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Commercial filming in wilderness
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Opportunities for solitude
Question:	<i>What are the question(s) you need to address?</i>
	Is it wilderness dependent? Are there alternative locations?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Application of proponent – alternatives – use levels of the area
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	Filming application
Database:	<i>What database will this data be entered into?</i>
	SUDS
Analysis Protocol:	<i>What analytical methods will be used?</i>
	N/A
Information Products:	<i>What information products will be generated?</i>
	Analysis of application
Information Use:	<i>How will this information be used?</i>
	Consistency in dealing with future applications
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Wilderness, wildlife, Rec SUP Administrator
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	NFRW/NFLM (cost recovery)/NFWF
Other:	<i>What else would be helpful to know about this information need?</i>

Undeveloped Quality - Developments

Wilderness Name:	<i>Cache la Poudre, Comanche Peak, Rawah, Neota</i>
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Abandoned range improvements (fences, water developments).
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Undeveloped quality, Natural Quality (wildlife)
Question:	<i>What are the question(s) you need to address?</i>
	<ul style="list-style-type: none"> • Where are the historical/abandoned range improvements? • What is their status, and what is their appropriate disposition?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	<ul style="list-style-type: none"> • Research closed allotment files/map for potential locations • Locate and verify on the ground • Survey for additional fences not documented
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	GPS/GIS
Database:	<i>What database will this data be entered into?</i>
	IWeb/INFRA-Range
Analysis Protocol:	<i>What analytical methods will be used?</i>
Information Products:	<i>What information products will be generated?</i>
	Maps and reports to determine and prioritize disposition of fences and water developments
Information Use:	<i>How will this information be used?</i>
	This information will primarily drive cooperative fence removal projects with Wildlife (internal FS, CDOW, etc)
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Wildlife (help prioritize projects with respect to habitat needs), Heritage (to determine cultural value if >50(?) years)
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	Each individual Wilderness: Surveys: 2 GS-4/5 for 10 days: \$2500, 1 GS-9/11 for 1 days= \$300 Supplies/vehicle \$1000, Database entry/Analysis/GIS: \$2000 Total per Wilderness: \$5800

Other:	<i>What else would be helpful to know about this information need?</i>
	<p>Abandoned fences are a hazard and threat to wildlife, and decrease the undeveloped quality and visitor experience in wilderness. An updated status and inventory of water developments are necessary to determine water right issues.</p> <p>This project could be combined with the noxious weed surveys to increase efficiency of resources, as both range and weed programs are managed together. Noxious weed surveys can be coordinated to search in areas proximal to historically documented range improvement sites, and undocumented fences can be located and inventoried as found while conducting noxious weed surveys.</p>

Natural Quality - Ecosystem

Wilderness Name:	Comanche Peak, and Cache la Poudre
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Impacts to riparian areas from permitted livestock grazing
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Untrammeled quality, Natural Quality
Question:	<i>What are the question(s) you need to address?</i>
	Is permitted livestock grazing adversely affecting water quality in the wilderness areas that have allotments within them?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Riparian surveys within grazed areas
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	PFC (Proper Functioning Condition) or MIM (Multiple Indicator Method)
Database:	<i>What database will this data be entered into?</i>
	Forest Service
Analysis Protocol:	<i>What analytical methods will be used?</i>
	Comparison between sites and years
Information Products:	<i>What information products will be generated?</i>
	Map and data for riparian condition trend.
Information Use:	<i>How will this information be used?</i>
	To guide future allotment management
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Range, fisheries, botany, hydrology
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	6 days of each specialist's time, possibly crew time, \$12,000??
Other:	<i>What else would be helpful to know about this information need?</i>
	Could possibly do in conjunction with stream surveys for CLP wilderness.

Natural Quality - Aquatics

Wilderness Name:	Cache la Poudre
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Recreationists removing wood from stream and degrading river habitat.
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Natural Quality
Question:	<i>What are the question(s) you need to address?</i>
	What is the extent of the habitat degradation due to wood removal along the SF Cache la Poudre River?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Large wood surveys, link to GIS, bank surveys
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	Large wood survey, bank surveys
Database:	<i>What database will this data be entered into?</i>
	Forest Service
Analysis Protocol:	<i>What analytical methods will be used?</i>
	Upstream/downstream comparison and distribution mapping
Information Products:	<i>What information products will be generated?</i>
	Map of large wood distribution and comparison to expected wood volumes.
Information Use:	<i>How will this information be used?</i>
	To determine the extent of the resource degradation for future management.
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Hydrology, fisheries, recreation
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	2 days per specialist for surveys plus crew time: \$10,000
Other:	<i>What else would be helpful to know about this information need?</i>

Undeveloped Quality - Developments

Wilderness Name:	<i>Cache la Poudre, Comanche Peak, Rawah, Neota</i>
Issue / Threat:	<i>What issue or threat do you need information for in order to inform the decision making process?</i>
	Condition of trails
Attribute(s) Affected:	<i>What attribute, or attributes, of wilderness character are affected by this issue / threat?</i>
	Undeveloped Quality - Developments
Question:	<i>What are the question(s) you need to address?</i>
	What are our current trail conditions and how do they affect wilderness character?
Data Collection Needs:	<i>What data do you need to collect to address this information need?</i>
	Data would be Forest Service Standard (TRACS) trail surveys.
Data Collection Protocol:	<i>What data collection protocol will be used to collect this data?</i>
	TRACS
Database:	<i>What database will this data be entered into?</i>
	InfraTRAILS
Analysis Protocol:	<i>What analytical methods will be used?</i>
	InfraTRAILS
Information Products:	<i>What information products will be generated?</i>
	More accurate GIS trail layer, identification of maintenance needs (deferred, safety/health, annual etc.)
Information Use:	<i>How will this information be used?</i>
	Direct trail crews (force account, contractors and volunteers) to critical needs to maintain wilderness character.
Other Program Areas Involved:	<i>What other program areas need to be involved and what is their role?</i>
	Wilderness, Trails
Cost Estimate:	<i>What are the estimated costs to produce this information?</i>
	CMTL & NFRW – Annually perform surveys on 20% of trail mileage (~72 miles). Utilize volunteers and paid staff. Cost - \$20,000/year.
Other:	<i>What else would be helpful to know about this information need?</i>
	This information would help the hydrologist and other specialists in knowing and understanding effects of recreational use on district trails.