Guide to Methods Used for Developing, Analyzing, and Preparing Social Data Related to Attachment to Place

Anne Black
Adam Liljeblad

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Our purpose in producing this document is to enable forest managers - on the Bitterroot National Forest or elsewhere - to update or produce new data on social attachment to place that facilitates understanding of the reciprocal relationships between society and natural areas, and integration of information on attachments into ecological models. Methods described are those used in our JFSP project # 04-2-1-114, *Integrating Social Values in Vegetation Models via GIS: The Missing Link for the Bitterroot National Forest.* These represent only one perspective on the spatial representation of place values. *Depending on the goals of a project, alternate methodology may be more appropriate.* For examples of alternate methodology, see Brown and Alessa (2005), ESRI (2005/2006), Gunderson et al. (2004), Kliskey and Kearsely (1993), McIntyre et al. (2004), or Tyrväinen et al. (2004).

For a full report of the theory and results of the project, see Black and Liljeblad (2006) (http://www.leopold.wilderness.net/research/fprojects/F015.htm).

Implementation

Interview Methods and Sampling

Materials Needed:

General map of project area (one for each interviewee)
Interview Guide
Tape recorder and recording media
Sampling design
Qualitative analysis process (and software)
GIS software

Interview Map

We developed an interview map on which the general project area is identified along with major streams, roads and other landmarks to assist interviewees in locating themselves and their important places (see map on page 14).

Interview Guide

To ensure that interviews were consistent and covered all necessary material, we developed an interview guide. This document, which the interviewer refers to throughout the interview, contains the primary interview questions, prompts that can be used to further explain or illustrate the questions, and other instructions to assist in obtaining reliable and complete information. Our interview guide is included on pages 10-13.

NOTE: In our pilot study, data regarding opinions of management impact (on the resource and attachment), substitutability of locations, and displacement length and potential was

disappointingly sparse. We suggest future users consider beefing up this section of the interview protocol, or scheduling a second interview to obtain more comprehensive data.

Study Population

We defined our study population as all residents of the region with an interest in the management of the study area. We strove to identify the range of values people hold for the project area rather than achieve statistical generalizabiltiy. Thus, in addition to approaching public meeting attendees, we also conducted one-on-one interviews using a purposive snowball sampling (Babbie 2001) scheme.

Study Sample

We developed a characteristics matrix for sampling that included:, demography (gender, age, length of time in the area, rural and town residents), social position (civic leaders, ordinary citizens), and economic/environmental values (small business people in timber and outdoor recreation industries, teaching, banking, motorized and non-motorized enthusiasts, Chamber of Commerce and environmental organization members, *etc*.). We sought at least one representative from each category. Interviews were conducted until each successive interview produced no new findings. Interviews followed the interview guide contained at the end of this document.

Interviews

Interviews were scheduled for locations in which the interviewee felt comfortable and where a recording device would be able to pick up the conversation without too much background noise. All interviews were tape-recorded using a small tape recorder, and lasted from 40-60 minutes. Locations varied included cafes, offices, public buildings, and interviewee's homes.

All interviews followed our interview guide (see Value Mapping Interview Protocol, pp 10-13 for complete details of the questions asked and subjects covered). Interviewees were assigned a unique identification code and asked to identify places they valued by circling them in pen on a clean copy of the map. The interviewer then attributed each resulting polygon with the respondent's unique identifier on the map and vocally, followed by the number associated with the order in which the polygon was drawn (i.e. the first polygon was assigned – 1, the second – 2 on the map, etc. Whenever interviewees discussed a new area, the number assigned to it was spoken aloud so it could be tracked in the recording.

Interviewees were asked why they valued the areas they did, what they did there, and the environmental features, if any, that contributed to the importance and value they attributed to an area. Additionally, they were asked about their opinions of different fire and fuel management techniques in those areas they valued. We recommend conducting test interviews to determine if a single interview will yield the necessary information, or if follow-up interviews are more appropriate.

NOTE: In addition to the interviews, we also utilized data from mailback maps distributed at public meetings (same map and instructions as those used in the interviews), and geospatial and transcribed interview data from Gunderson et al (2004), which overlapped the Trapper-Bunkhouse area. However, these data sources provided less detail about people's place values; therefore we recommend conducting interviews for future studies.

Data preparation

Recordings of interviews were transcribed by a professional transcribing service. A copy of the interview map, local place names, and common technical terminology were provided to the transcriber to help with accuracy and spelling. Upon completion, project staff listened to the interview recordings while reading them; errors found were corrected. Each interview transcript was saved in a separate electronic text file.

Qualitative Analysis

Following standard qualitative assessment methods (cf Strauss and Corbin 1990), before coding commenced, interviews were carefully read three times to ensure full understanding of the values, activities, and features that participants described. After initial reading and prior to initiating formal coding, preliminary categories of codes were developed, compared and differences reconciled by at least two different research staff. This helps to ensure parsimony, clarity, and universality of categories.

Using qualitative data analysis software[*], transcribed data were coded with a label providing an intuitive description of the place (such as Tin Cup Creek), and codes indicating place values people attributed to an area, the environmental features in those areas, the activities they participated in those areas, the social units involved, and their opinions about management of those areas. These broad categories followed our conceptual model that captures both the physical commodities/activities perspective of attachment to place (captured as 'activities') and symbolic/emotional meanings perspective (represented as 'attachments', 'function' and 'identity') across multiple scales (biophysical settings that range from landform to location and social settings that span the personal to cultural). A primary purpose of the model is to identify specific features of the landscape which may be affected through management activities, identify the connection to the level of social hierarchy at which this occurs, and describe the nature of the connection. (For more detail about the model, please visit the project website: http://www.leopold.wilderness.net/research/fprojects/F015.htm). Coding occurred within these broad categories, a brief description of which follows. These may be used as starting points for future analysis – but we encourage future users to let their data guide them in the final determination of coding levels, classes and types.

Once all transcripts were coded, they were reviewed by other project staff to ensure completeness and accuracy of coding, with amendments to document coding and coding structure made as necessary.

Generalized Coding Scheme

Place Identifier

These are the unique codes that each interviewee assigns to the important areas they identify. Each unique place a interviewee discusses is assigned its own identifier so the following coding schemes can be linked to a map representing the area.

[*] We used the software program NVivo 2.0 (QSR International 2002) to code our data, but it presented a number of significant challenges related to export of data into a database format. Future versions of the software or other programs may be more appropriate than the version we used.

Place Values

People value places for a wide variety of reasons that result from tangible as well as abstract interactions with their surroundings. These values develop as a result of interactions with environmental features and the social and personal activities and interactions that occur in these places. Because each parcel of land tends to have a unique set of qualities and characteristics, *and* people relate to landscapes and one another in different ways, the full set of reasons people value places is likely unique to each area. Similarities can be found in core sets of values and meanings across a wide range of landscapes and uses, though place-specific differences limit the complete replicability of all reasons for attachment to place.

The social attachments people assigned to areas they value in the Trapper-Bunkhouse area are listed in Table 1 (page 15). The physical associates related to those attachments are outlined in Table 2 (page 16). Unlike the features captured in Table 4, these physical *associates* are interpretations of the environment made by interviewees. These we found fell into one of two levels: objective and subjective. We made this distinction based on whether the interpretation was likely to be similar across a variety of individuals (such as viewshed) or vary (such as 'naturalness'), respectively. These distinctions helped us to identify features that were directly affected by management activities.

Activities

The activities people participated in on public lands reflect an important aspect of meaning. Those engaged in in the Trapper-Bunkhouse project area are listed in Table 3 (page 17).

Environmental Features

Features on the landscape impact how people value and relate to particular areas, yet values attached to the *same* feature often vary widely. For example, a member of an environmental group might value an area because it has large stands of old-growth Ponderosa Pine, while an off-road enthusiast may value that same area because it has an extensive trail network and by a family out for an afternoon hike because it has a wide, easy trail with breathtaking vistas. Such features, and background on how people interact with them to create meaning, need to be understood if the landscape is to be effectively managed. The environmental features people valued in the Trapper-Bunkhouse project area are included in Table 4 (page 18).

Opinions about Management

Management of public resources inevitably results in change. Understanding how people will respond to that change is necessary to develop effective management strategies. We captured the type of management activity causing change and 3 different aspects of response to change: opinions about the ecological impact, opinions about length of displacement, if any, due to activities and resulting changes, and whether other areas provide similar experiences and attachments. Our codes for people's opinions about management are included in Table 5 (page 18).

NOTE: We recommend future researchers define at least one additional category to capture whether respondents feel positively or negatively about the changes. It may also be useful to use other visual prompts, such as before/after photographs of similar locations and treatments, to assist.

Geospatial Analysis

NOTE: Geospatial analysis assumes basic GIS skills.

Landscape dynamics simulation models such as SIMPPLLE are useful for understanding potential trends and probabilities in future conditions, such as vegetative stand structure and composition, landscape structure, wildlife habitat, and fire size, etc. Most do not currently include mechanisms to track or identify how management actions are likely to affect the social environment surrounding public lands. However, by constructing a spatial database of place attachments and incorporating these into ecological models, linkages can be established between study participants' attachment to place and management alternatives.

To develop linkages, we digitized the lines drawn on each interviewee's hard copy map into a geospatial database as polygons, using the assigned unique identifier as the Polygon-ID. (Polygons were the primary representational units we used, just as easily we could have used grids or other types of data.) This data can be summarized and displayed in several formats:

Hotspot map- a map indicating areas of frequent mention

A hotspot map showing the areas of most frequent mention was created by grid-ing the polygons then filtering to fuzz the edges (see page 19 for an example). This helps to eliminate the erroneous and extraneous 'slivers'. The map highlights places respondents mentioned most frequently as places of importance and might serve as the basis for focusing additional work.

Hyperlinked map – an interactive map providing link to actual passages

We extracted sections of interview narratives relevant to each polygon and placed them in separate .txt files. These were then hyper-linked to the GIS database. Using the hyperlink function in any ARC module (ESRI) provides access to the actual passages and language interviewees used to describe their relationship with an area.

Places of Importance – an interactive map synthesizing qualitative assessment coding

In a new GIS layer, polygons were manually drawn around each of the "hottest" areas, that is, those that were most frequently mentioned in order to create a summary of the places the most people tended to consider to be important (page 20). We used this map to create an interactive map and as the base for SIMPPLLE analysis.

We constructed an associated database containing values, activities, environmental factors, and opinions of management using Microsoft Excel to concatenate and reduce duplication across all individual polygons falling within the generalized 'hot' or 'important' places. The "identify" feature in GIS software such as ArcView or ArcGIS provides a useful tool

for viewing the coded attributes of each summarized area. Data in this format can be directly read into landscape dynamics simulation models such as SIMPPLLE.

The document "Our Places: narratives on special places in the Trapper-Bunkhouse fuels treatment project area" presents both the narrative excerpts and the concatenated 'story' for all 10 of the 'special places' we identified in our study.

SIMPPLLE dataset

The simplest way to associate social value and SIMPPLE at this time is to use the GIS dataset of areas most frequently mentioned as the 'Special Areas' coverage for SIMPPLLE analysis. User's then request SIMPPLLE to create reports for these special areas. These reports are then analyzed to determine changes in the amount of resources/physical features and associates related to specific values. Spatial datasets can be viewed to determine changes in the spatial arrangement of resources/physical features and physical associates.

NOTE: SIMPPLLE developers are pursuing further integration.

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Supplemental Materials

Value Mapping Interview Protocol
Community Key Informants

Community Location: _____ Interviewee ID: _____

Interviewer: _____ Date: _____

Start Time: _____

I am here on behalf of [Organization]. [List organization's purpose]

Right now, we're trying to understand people's connections to the [general area's**] landscape and how land management may affect these relationships. Our focus area is along the [more specific area], particularly in the [**study area**]. I would like to show you a map and ask some questions about the importance of these areas to you. The interview should take about 45 minutes to an hour. Is that okay?**

In order to make sure that I can keep track of everything you mention, I would like to tape record our conversation. Your comments will not be associated with your name, and your name and contact information will not be available to the public. All information will be stored securely and will be destroyed upon completion of the study. Is it OK to proceed?

Part 1: Use History

I would like to begin by showing you this map of the area.
[Orient person to the study site map and where we are]

1. **Where do you live on this map?** (mark a dot on map in distinct color if possible)
   If you cannot locate your residence, what is the closest landmark?

2. **How many years have you lived in the** [broad area]? _____

3. **Is this your primary residence?** Y N
   If NO, **how many months per year do you spend in this residence?** ____

Part 2: Mapping Landscape Meaning

4. **Why do you choose to live here?**
   Probe:
   What is it that drew you or keeps you in this area?
   What do you like about the area?
   What does it mean to you to live in the [broad area**]?**
   Could you explain what you mean by…?

We want to draw out both their type of physical and social/emotional connection to these places…so if answers are social, probe for level, such as family, friends, solo, community, etc.

5. **Can you show me places on the [**public land**] portion of this map that are particularly important to you? Use this pen to draw these areas. We'll number these too, so we can associate your comments to each correctly.**

   If Necessary: **As you see, this scale is pretty broad, so there's not a risk of giving away your favorite mushroom, fishing or berry picking spot!**

Repeat the following sequence of questions for each of the places specified, preferably at least 3.

Some people may not want to do more than one or two; others may want to do many.

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6. **What is it about this place that is important or special to you?**
   Probes:
   What are the visits that are of greatest importance to you?
   What is it that happens or occurs during those times?

   These are in-part '*doing'* or '*being'* sort of questions.
   If they answer with *doing*, then try to obtain specifics – if fishing, is it flat water or stream; native or exotic fish, fly or spinning; if it's OHV, what types of areas do they seek? Etc.

   Look for both tangible and intangible comments, such as: 'I've logged that area 3 times so I kind of feel proprietary about it'…; 'the air is so clear, calming...'; it's quiet and I can take a walk in peace. I often see deer there..'.

   Then probe for deeper understanding.

   Perhaps by asking a reversed question, such as:
   So it wouldn't be the same if… [**it wasn't quiet there**]…*OR*… [**you didn't see deer**]… *OR*…[**if you ran into more people**]? Etc.

   What is it about the place that makes it [**peaceful**]**?**

   Do they mention big trees, or solitude, or lack/presence of motorized recreation? We're also interested in both topographic features (peaks, glaciated valleys) as well as seral phases, such as berries, mushrooms, elk forage, old growth.

   Also, you may want to ask:

When you think about the place now, what is it about that site pops to your mind immediately?

7. **Do you go there most often alone or with others? Like who?**
   Probe:
   So your attachment is [**both social and personal**]**?**
   Is it the same if you go there with *[the reverse]* [**alone/with other people**]**?**

8. **If you couldn't go here, are there other places you can go for the same experience?**
   Probe:
   Is this other place just as good? Why?

In the event that this question raises alarm, reassure them nothing is planned, but the [managing agency] recognizes that their activities, wherever they are, impact people and we're interested in understanding how such activities affect people's attachments and being in order to take these into consideration.

Part 3: Changes Due to Fuel Hazard Reduction Treatments

As you know, minimizing risk of catastrophic fire is a big deal for the [Managing Agency] **right now. I would like to ask you about your thoughts on fuel hazard reduction treatments, particularly in these areas we've just discussed.**

By fuel hazard reduction treatments, I mean treatments that are intended to reduce the potential for high severity fire. In general, this means reducing the number of trees and understory biomass, resulting in a visually more open stand. Methods used to accomplish this could include using prescription fire alone, using mechanical fuel treatments alone, using a combination of prescription burning and mechanical treatments, and allowing lightning ignitions to burn naturally.

Because we're interested in understanding how the *effects* of these treatments would *affect* you, I'd like to talk about the *outcome* or result *rather than the method* itself. Of course, each creates slightly different outcomes (piling and burning creates small burned areas, broadcast or natural burn create larger burned areas, and mechanical treatment will leave skid trails and roads) -and these sorts of differences are important.

This question may also get folks somewhat alarmed … as if there's something planned. Reassure them nothing is planned, but the Forest recognizes that their activities, wherever they are, impact people and we're interested in understanding how such activities affect people's attachments and being in order to take these into consideration.

Ask the following for each of the areas discussed above:

9. **Thinking about this [first/second/last area], would you approve or disapprove of fuels treatment?** [Be sure to re-state the area number for recording purposes] *Probe:*
What is it about the result that you approve or disapprove of?
Would treatment affect the importance of this area to you? How/why?
Refer back to the aspect/dimensions of their experience that they noted earlier and ask specifically whether/how treatment would affect this dimension for them.
Would it matter to you which method was used to accomplish it? Which method, and why/why not

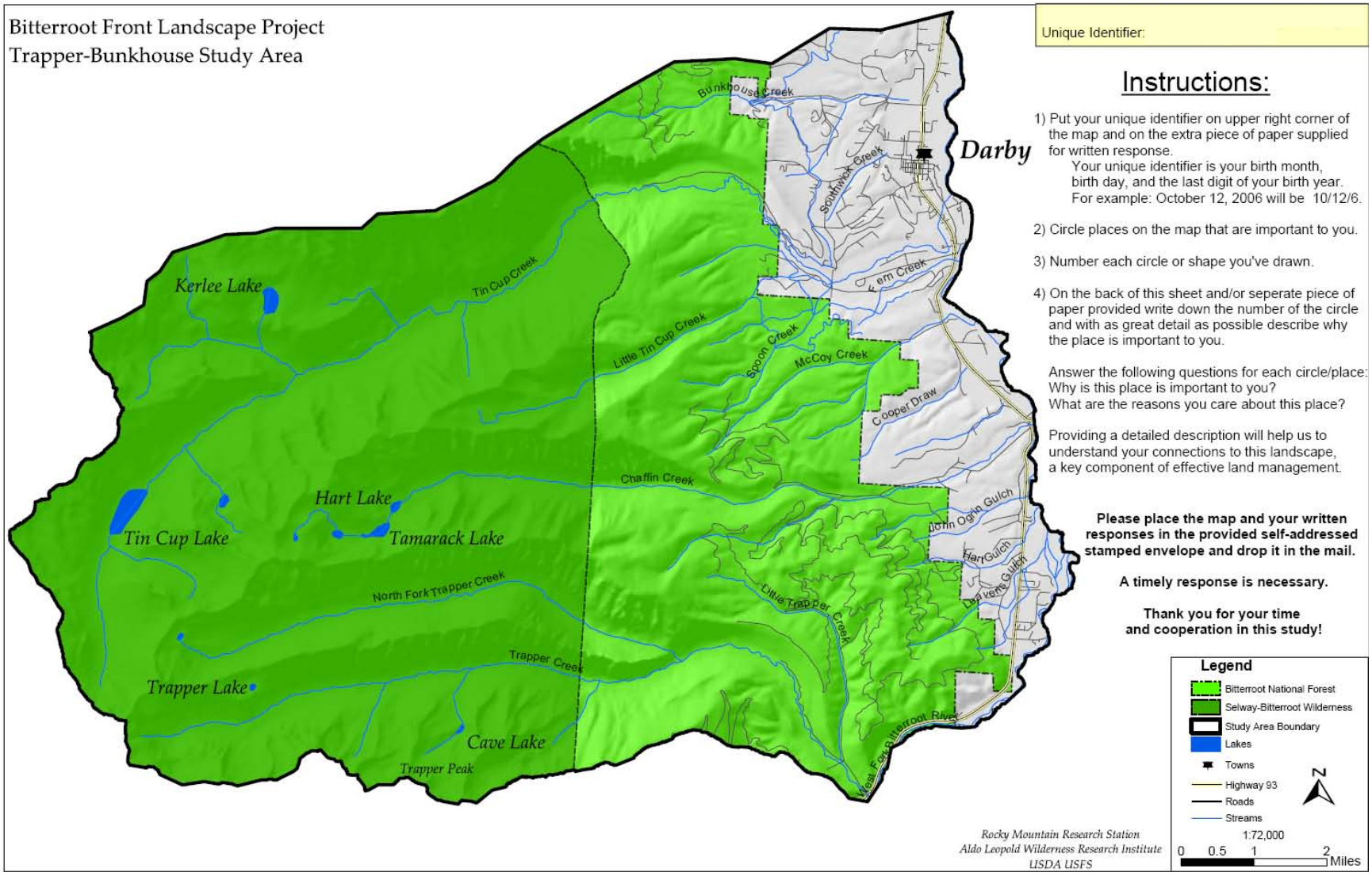
That concludes our interview, we really appreciate your time and your comments. Is there anything else you'd like to note or say about the [Area's**] [**management activities**]?**

Part 4: Concluding Information

10. **Would you be interested in receiving a copy of the results of this study? [Y N] If so, what is the best way to get in touch with you?**

End Time: _____

Interview Map
Originally 11" x 17"



Our Coding Structure

Table 1: Social Attachments

Table 1: Social Attachments Discussed by Respondents

Level	Category	Type
Individual	Physical	Adventure
		Challenge
		Exercise
		Exploration
		Goal Accomplishment
		Subsistence
	Emotional	Appreciation
		Connection to Landscape
		Experience
		Natural Inquiry
		Relaxation
		Serenity
	Economic	Employment
Family/Friends	Physical	Freedom
		Independence
		Self Sufficiency
		Subsistence
	Emotional	Experience
		Lifestyle
		Ownership
		Social Interaction
	Economic	Economic Benefit
		Economic Cost
Community	Physical	Fuels for Schools Program
	Emotional	Community Interaction
		Distrust
		Lifestyle
		Ritual
	Economic	Economic Benefit
		Economic Cost
		Local Economy

Table 2: Physical Associates Discussed by Respondents

Level	Category	Type	Attribute
Subjective	Management Influenced	Historical Conditions	
		Naturalness	
		Potential Use	
		Wilderness Related	
	Physical	Aesthetics	
		Variety	
Objective	Management Influenced	Activity Related	Historical Feature
			Interconnected Trails
			Natural Conditions
			Quietude
			Unauthorized Use
			Unique Opportunity
			Viewshed
			Wilderness Qualities
			Wildlife Habitat
		Density Related	Open Space
			Rurality
			Uncrowded
		Ownership Related	Abundance of Recreational Opportunities
			Abundance of Wild Lands
			Accessibility
			Proximity to Public Lands
			Proximity to Recreational Opportunities
			Proximity to Wildlands
			Recreational Opportunities
			Wilderness (Designated and Defacto)
	Physical	Biological Importance	
		High Productivity	
		Naturalness	
		Unique Feature	

Table 3: Activities

Table 3: Activities Identified by Respondents

Activities	
Being "out there"	Berry Picking
Bicycling	Camping
Christmas Tree Harvest	Driving
Employment	Exercise
Firewood	Fishing
Fishing-Brook Trout	Fishing-Cutthroats
Hiking	Hunting-Bear
Hunting-Deer	Hunting-Elk
Hunting-General	Hunting-Grouse
Hunting-Mountain Goats	Hunting-Mountain Lion
Irrigation	Listening
Observing Natural Systems	OHV Use
Photography	Picnicking
Recreation-General	Riding Horses
Riding-Type Unspecified	Sightseeing
Sitting	Skiing
Snowmobiling	Swimming
Visiting Family	Walking
Wildlife Viewing-Elk Winter Range	Wildlife Viewing-General
Wildlife Viewing-Goats	

Table 4: Scales of Environmental Features Identified by Respondents

Landform Scale			Vegetation Scale		
Landscape	Drainage	Local	Broad	Midlevel	Fine
High Elevation	Canyon	Cliff	Forested Area	Forest Openings	Abies spp.
Local Topographic Variation	Glaciated Valley	Couloirs	Intact Ecosystem	Mosaic Pattern	Big Trees
		Rock Glacier	Native Species Habitat		Bitterroot Flowers
			West Side Of Bitterroot		Calypso Bulbosa
					Early Seral Vegetation
					Good Productivity Site
					Huckleberries
					Laly
					Laoc
					Large Standing Dead Trees
					Larix spp.
					Mature Stand
					Mushrooms
					Old Growth
					Open Stand
					Pial
					Pinus spp.
					Pipo
					Psme
					Trees

Table 5: Management Codes

Category	Type
Type of Fire/Fuel Management	Mechanical Thinning
	Prescribed Burning
	Wildland Fire Use
	Wildfire
	No Action
Impact of Management	High
	Moderate
	Low
	Mixed
	None
Length of Displacement	Permanent
	Several Years
	A Few Years
	Seasonal
	None
Substitutability	Captured, but not coded

Figure 1: Value Hotspot

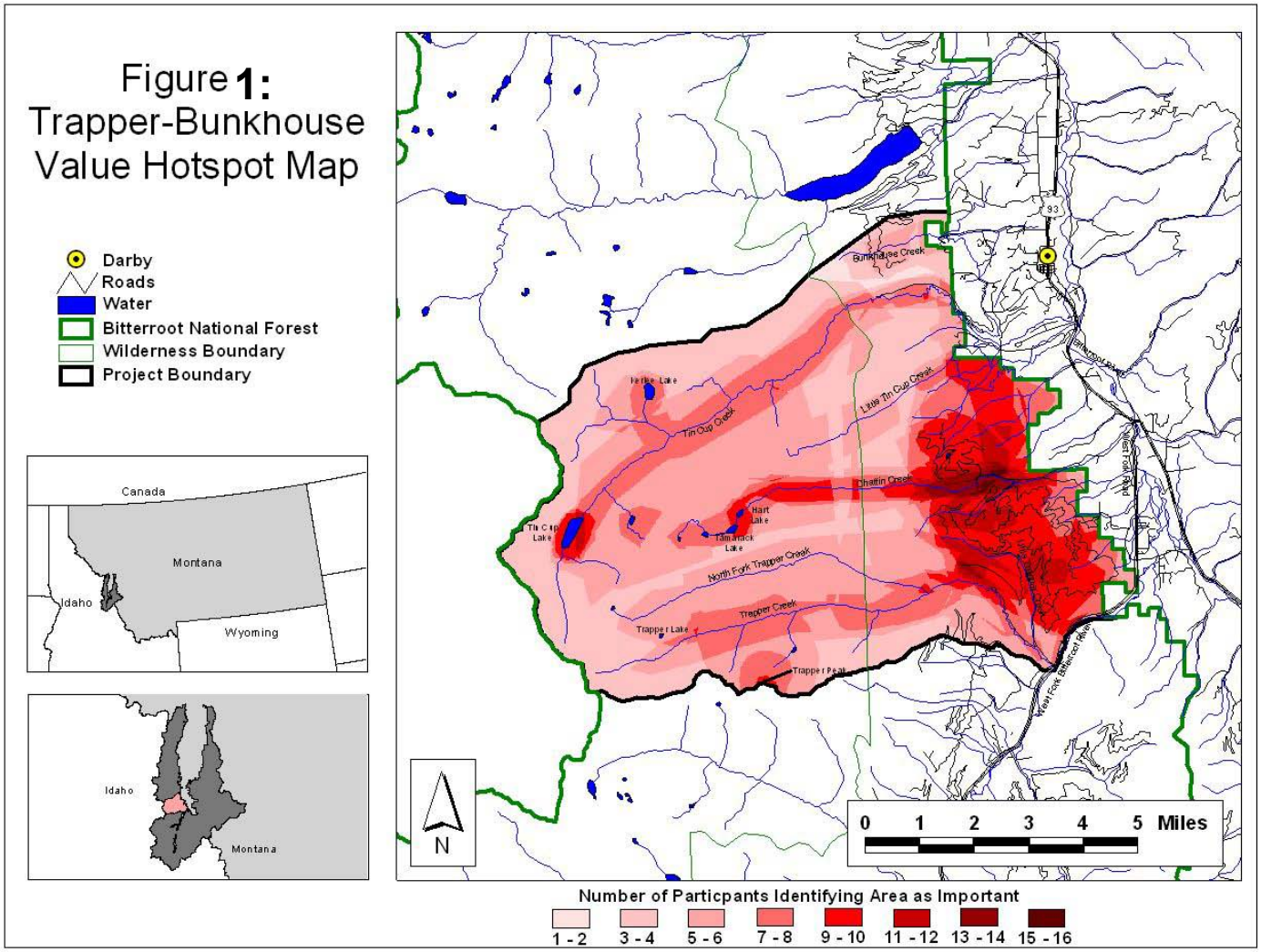


Figure 2: Identified Places of Importance