

Research Natural Areas

BACKGROUND INFORMATION

“Forest planning shall provide for the establishment of Research Natural Areas (RNA’s). Planning shall make provision for the identification of important forest, shrubland, grassland, alpine, aquatic and geologic types that have special or unique characteristics of scientific interest and importance that are need to complete the national network of RNA’s.” 36 CFR 219.25

Forest Service Manual 4063.02 lists the objectives for establishing RNA’s:

1. To preserve a wide spectrum of pristine areas that represent important forest, shrubland, grassland, alpine, aquatic, geological and similar natural situations that have special or unique characteristics;
2. To preserve and maintain genetic diversity;
3. To protect against serious environmental disruptions;
4. To serve as reference areas for the study of succession;
5. To provide on-site and extension educational activities;
6. To serve as baseline areas for measuring long-term ecological changes;
7. To serve as control areas for comparing results from manipulative research; and
8. To monitor effects of resource management techniques and practices.

There are currently two RNAs on the Bighorn National Forest. Some of the pertinent features of the Bighorn RNAs are shown in Table 1. A more complete description of these RNAs, and others in Forest Service Region 2, can be found in Ryan, et al. (1994).

Table 10-A. Selected Features of Bighorn National Forest Research Natural Areas

Name	Acres	Date Established	
Bull Elk Park	728	1952	201 acres of disjunct Palouse Prairie Climax; <i>Agropyron-Festuca</i> association. Remainder of area is primarily lodgepole pine montane forests.
Shell Canyon	738	1987	Primary reason for establishment is Rocky Mountain juniper community. Most other sites have been seriously disturbed, and Shell is considered to be in good condition.

The RNA selection criteria in Region 2 is (USDA Forest Service, 1993):

1. Quality – how well a site represents the targeted ecosystem type of protected biodiversity elements.
2. Condition – how much the site has been degraded or altered from natural or optimal conditions.
3. Viability – the likelihood of long-term survival for the ecosystem and its protected biodiversity.
4. Defensibility – extent to which the ecosystem and biodiversity elements can be protected from extrinsic human factors.

BIGHORN FOREST PLAN REVISION RNA PROCESS

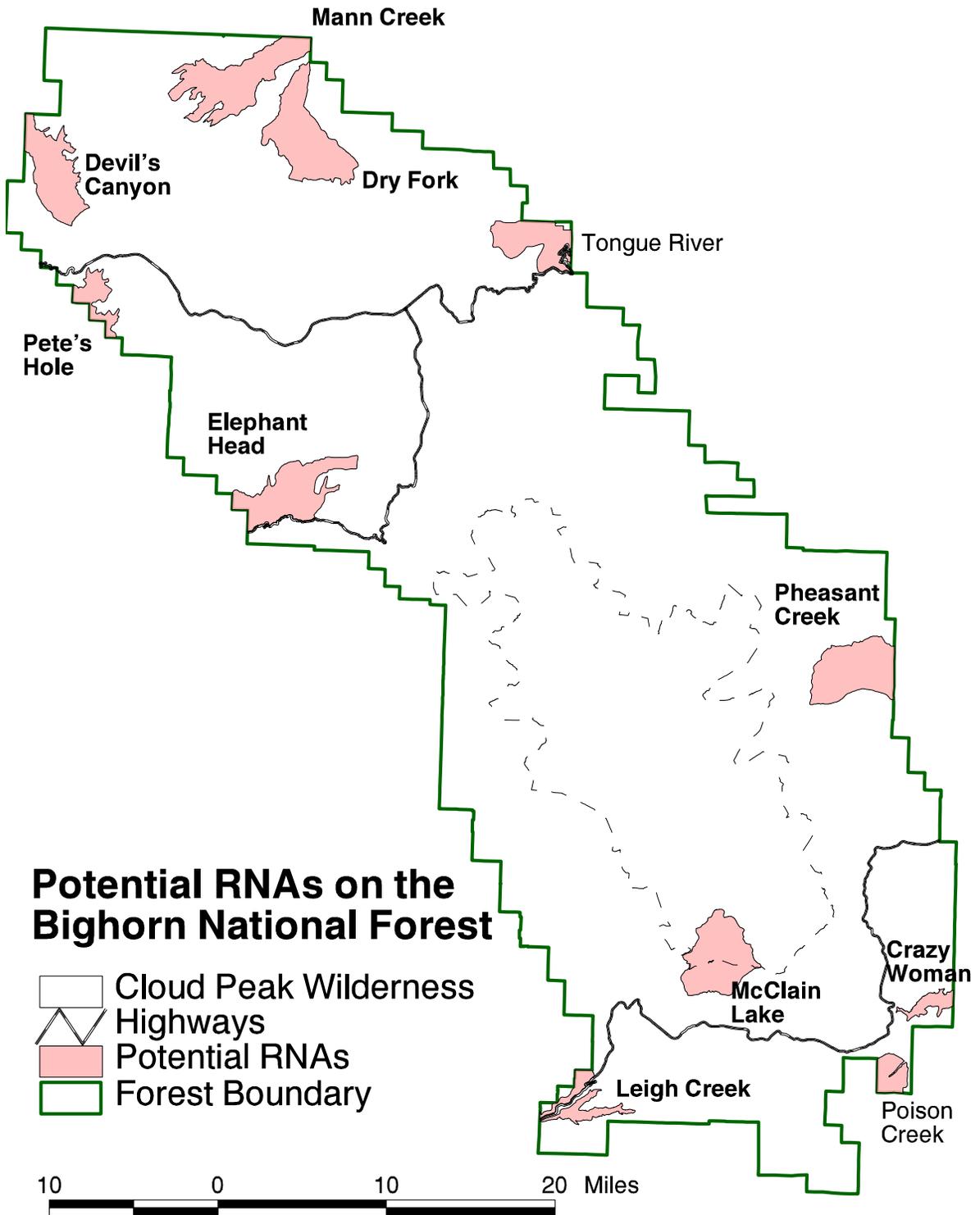
Initial identification of additional areas for potential RNA (pRNA) designation began in about 1994, when several forest resource specialists met to identify areas on the Forest thought to meet the RNA selection criteria. Eleven areas were selected:

- Crazy Woman Canyon
- Devil's Canyon
- Dry Fork
- Elephant Head
- Leigh Creek
- Mann Creek
- McClain Lake
- Pete's Hole
- Pheasant Creek
- Poison Creek
- Tongue River

The eleven areas are shown on the map on the following page.

The Bighorn National Forest contracted with the Wyoming Natural Diversity Database (WYNDD) to conduct ecological evaluations. The Mann Creek ecological evaluation was funded by Trout Unlimited in Sheridan, but the contract was administered by Forest Service personnel.

The ecological evaluations included field review by WYNDD botanists, ecologists, and/or wildlife biologists; interaction with Forest Service and Wyoming Game and Fish specialists; and, review of pertinent vegetation and animal databases. Initial drafts of the ecological evaluations were reviewed by National Forest and Game and Fish specialists. Upon receipt of the ecological evaluations, most of the pRNAs were field reviewed by Tom Andrews (Region 2 RNA ecologist), Bernie Bornong (Bighorn NF RNA coordinator), and usually the appropriate district ranger.



The following table summarizes a few characteristics of each pRNA. The ecological evaluations are 30 to 50 pages long, and contain detailed information about each pRNA. The ecological evaluations are available at the Forest Service office in Sheridan.

pRNA	Acres	Major Cover Types ¹	Soil Substrate	Quality	Condition	Viability	Defensibility
Lake McClain	8250	Alpine, LP, SF	Granite	Variety of upper subalpine and alpine ecosystems.	Little alteration from pre-settlement conditions.	Baby Wagon meadow is human access point; little influence now.	4-wheel drive access to south end; snowmobile trail through SW corner.
Leigh Canyon ²	<1500	DF, CW, Shrub/Sage	Sedimentary	Types are not represented in RNAs	Leigh: largely pristine Tensleep: Impacted	Leigh: likely to remain viable	Leigh: Highly defensible Almost inaccessible
Mann Creek	<7500	DF, G, PP, LiP, Shrub	Sedimentary	Good representation of limestone canyon habitats.	Exotics present, major in only a few mesic grass. Needs fire	No immediate threats noted. Will need fire. Trout protection	Steep rough terrain, little access.
Pheasant Creek	9090	LP	Granite (<10% Sediment)	Large and least impacted LP/vaccinium type. Very homogeneous, may not define range.	Good: Difficult access and minimal human impacts.	LP seral to SF? Natural processes appear intact.	Difficult access, Impacts primarily along trails.
Pete's Hole	2770	SF, Sage, DF, LiP	80%+ Sedimentary <20% Granite	Types are variable and not represented in RNAs	Exotics/human impacts in meadows	Forests stable, grasslands impacted	Relatively defensible, difficult access.
Dry Fork	10,190	DF, G, Sage, LiP	Sedimentary	Wide variety of ecosystem types: forest, grass, shrub.	Many types have exotics present; timothy up to 15% in grass/shrub.	DF "stable seral", so may persist. Exotics may lead to change.	Most of area "easily protected."
Elephant Head	9660	G, SF, Sage, Jusc, CW	Sedimentary	Wide variety: ES, DF, Jusc, shrub, grass	Exotics, sometimes dominant, along Trail	Exotics may continue to increase	Cliffs secure; Beef Trail may be indefensible.
Devil's Canyon	<6000	SF, DF, LiP, As,G, Sage	75% Sedimentary, 25% Granite	Wide variety of ecosystem types.	Most is "remarkably undisturbed." Trail.	Med. Wheel NHL boundary may affect south portion.	Canyon good, south end poor.
Tongue River	5660	DF, G, PP, CW, LiP	80% Sedimentary, 20% Granite	DF, PP, some shrubs and grass	7% of pRNA impacted by exotics; trails	Heavy human use and evidence of past use.	With trails, probably indefensible.
Crazy Woman	1580	LP, PP, CW, Shrub	50% each	Types quite variable, not in RNAs	Slopes good; riparian bottom is poor	Fire needed in PP.	Road in bottom bisects area, not defensible.
Poison Creek	2330	LP, G, As	85% Granite, 15% Sedimentary	Good LP/vaccinium community	Poor: high evidence of human uses	Poor: Exotic species, roads, grazing, logging	"Poorly suited for research"

¹ LP: Lodgepole Pine SF: Spruce/fir DF: Douglas-fir G: Grass Sage: Sagebrush LiP: Limber Pine Jusc: Rocky Mountain Juniper

PP: Ponderosa pine As: Aspen CW: Narrowleaf Cottonwood

² Ecological evaluation is labeled as "Tensleep Canyon". However, Tensleep Canyon itself is not suitable, due to highway, old highway, exotics, cattle trailing.

