APPENDIX 6—CHARACTERISTICS OF OLD-GROWTH FORESTS—BLM PINEDALE FIELD OFFICE

There are multiple (and varying) definitions of old growth forests because of differing fire influences and environmental conditions in the Intermountain West. Most of the current definitions are based on stand level structure, composition, and function. The two primary types of forests reflect the role of fire within them–those forests shaped by natural change and plant succession and forests where succession processes are greatly influenced by major biological disturbances such as fire, insects, wind or drought. Kaufmann et al. (2007) use the following table to determine old growth:

Table A6-1. Essential Structural Features of Old Growth in Fire-Adapted Forests

(Note: Whether a feature is essential may depend on scale, e.g., patch, stand, or landscape. For example, age variability is likely at a landscape scale, and snags and large dead and downed fuels may not exist in some patches.)

Structural Feature	Essential Structural Feature?	Comment
Large trees	No	Tree size depends on individual site characteristics (species, precipitation, soils, etc.) and competition. Young trees may be large, and old trees may be small.
Old trees	Yes	Trees develop structural characteristics that are relatively unique when old. Examples are dead tree tops, flattened crowns, different branch characteristics, diversity in crown form, and altered bark color and texture.
Age variability	No	This is an additional feature in some old-growth forest types. Some forests regenerate episodically (even aged) with most trees establishing in a few years to a decade, probably in conjunction with wet years and large seed crops, and in concurrence with relatively long intervals between fires. Others may regenerate over decades (uneven aged).
Snags and large dead and downed fuels	Yes	Snags and large downed wood are essential elements of old forests although frequent historical fires may have limited the accumulation of dead wood. The density and sizes of these features vary depending on forest type, precipitation, and other factors. Snags and large dead and downed fuels may be unevenly distributed across the landscape.
Between-patch structural variability	Yes	High variability is a critical feature of these forests. Within-patch variability may be low, but variation among patches is large. Proportions of patches with different developmental stages varies depending on forest type, climate, etc.

This table along with the Biophysical Settings (BpS) of the Landfire system, which show the approximate age class distribution on a landscape scale, will be the primary tools used to determine old growth within the Pinedale planning area. By combining these two tools, the forest land of the planning area can be analyzed to ensure that the appropriate seral stages, from early seral post disturbance to late seral old growth, can be maintained on the landscape.

The following are the standardized Society of American Foresters definitions and descriptions. These descriptions are based on Clementsian theories of succession and do not include disturbance as a change element in the forest. They are included here as a reference material and can be used on a stand-by-stand basis if it is determined to be applicable.

Old growth forests are ecosystems distinguished by old trees and related structural features. Old growth encompasses the later stages of stand development that typically differs from earlier stages in several ways, including tree size; accumulation of large, dead woody material; number of canopy layers; species composition; and ecosystem function.

Old growth is typically distinguished by the following:

- Large trees of specific species
- Wide variation in age classes and stocking levels
- Accumulations of large, dead, standing and fallen trees
- Decadence in the form of broken or deformed tops and boles
- Multiple canopy layers
- Canopy interspaces and understory patchiness.

ENGELMANN SPRUCE—SUBALPINE FIR; SOCIETY OF AMERICAN FORESTERS (SAF) COVER TYPE 206

Live Trees (Cold/Dry Environment)

DBH: > or equal 15”
Trees/Acre: > or equal 15
Age: > or equal 150 to 180
Variation in Tree Diameter: Yes
Tree Decadence: > or equal 2; DBH 14; Evident dead, broken, or deformed tops and/or bole or root rot
Multiple Tree Canopy Layers: Yes

Dead Trees (Cold/Dry Environment)

Standing DBH/ht ft: > or equal 10/15
Standing Trees/Acre: 2 to 4
Down Diameter (in): > or equal 8 or > 6
Down Pieces/Acre—length in ft: > or equal 16 – 8 ft or 100 pieces > 8 feet

DOUGLAS-FIR; SAF COVER TYPE 210

Live Trees (Higher Productivity Site)

DBH: 24”
Trees/Acre: > or equal 15
Age: > or equal 200
Variation in Tree Diameter: Yes
Tree Decadence: Evident dead, broken, or deformed tops and/or bole or root rot
Multiple Tree Canopy Layers: Yes

Dead Trees (Higher Productivity Site)

Standing DBH/ht ft: > or equal 20/20
Standing Trees/Acre: > or equal 1
Down Diameter (in): > or equal 12

Down Pieces/Acre—length in ft: > or equal 0 - 16

Live Trees (Lower Productivity Site)

DBH: 18”
Trees/Acre: 10
Age: > or equal 200
Variation in Tree Diameter: Yes
Tree Decadence: > or equal 2; DBH 15; Evident dead, broken, or deformed tops and/or bole or root rot
Multiple Tree Canopy Layers: Yes

Dead Trees (Lower Productivity Site)

Standing DBH/ht ft: 16/10
Standing Trees/Acre: 0 to 3
Down Diameter (in): > or equal 15
Down Pieces/Acre—length in ft: Infrequent 4 - > or equal 8

LODGEPOLE PINE; SAF COVER TYPE 218

Live Trees

DBH: > or equal 11”
Trees/Acre: > or equal 25
Age: > or equal 140
Variation in Tree Diameter: Yes
Tree Decadence (trees per acre [TPA]-DBH): > or equal 2–11; evident dead, broken, or deformed tops and/or bole or root rot
Multiple Tree Canopy Layers: Yes

Dead Trees

Standing DBH/ht ft: > or equal 11
Standing Trees/Acre: 5
Down Diameter (in): > or equal 11
Down Pieces/Acre—length in ft: > or equal 50 - > or equal 8

LIMBER PINE; SAF COVER TYPE 219

Live Trees (Lower Timberline)

DBH: > or equal 16
Trees/Acre: > or equal 10
Age: > or equal 250
Variation in Tree Diameter: Yes
Tree Decadence: Evident dead, broken, or deformed tops and/or bole or root rot
Multiple Tree Canopy Layers: Yes

Dead Trees (Lower Timberline)

Standing DBH/ht ft: N/A
Standing Trees/Acre: Few
Down Diameter (in): N/A
Down Pieces/Acre—length in ft: Rare

Live Trees (Montaine Woodlands)

DBH: > or equal 1
Trees/Acre: 10
Age: > or equal 500
Variation in Tree Diameter: Yes
Tree Decadence: Evident dead, broken, or deformed tops and/or bole or root rot
Multiple Tree Canopy Layers: No

Dead Trees (Lower Productivity Site)

Standing DBH/ht ft: N/A
Standing Trees/Acre: Few
Down Diameter (in): N/A
Down Pieces/Acre—length in ft: Rare

ASPEN; SAF COVER TYPE 217

Live Trees

DBH: > or equal 12”
Trees/Acre: > or equal 10 dry—20 mesic
Age: 100
Variation in Tree Diameter: Yes
Tree Decadence (TPA-DBH): N/A
Multiple Tree Canopy Layers: Yes

Dead Trees

Standing DBH/ht ft: > or equal 10/15
Standing Trees/Acre: 2
Down Diameter (in): > or equal 8
Down Pieces/Acre—length in ft: > or equal 10–10

ROCKY MOUNTAIN JUNIPER; SAF COVER TYPE 220

Note: Extrapolated old growth characteristics from Pinyon-Juniper old growth characteristics.

Live Trees

DBH: 12”
Trees/Acre: 12
Age: 200

Variation in Tree Diameter: Yes
Tree Decadence (TPA-DBH): N/A
Multiple Tree Canopy Layers: N/A

Dead Trees

Standing DBH/ht ft: 12/5
Standing Trees/Acre: > or equal .05
Down Diameter (in): > or equal 10
Down Pieces/Acre—Length in ft: > or equal 2–5