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Existing Vegetation

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INTRODUCTION

This appendix describes and compares the following two primary sources of data used to describe existing vegetation conditions for analyses used in the Proposed Land Management Plan: a spatial map source and an inventory source. Spatial data analysis is used to display how existing vegetation occurs on the landscape and how it combines with other mapped resources (e.g., elevation, slope, soils, and watershed). Other analyses required an inventory of vegetation attributes, such as dominance type, size, density, trees per acre, and volumes.

SPATIAL DATA

A spatial representation of vegetation for the KIPZ was developed using the products of the Vegetation Mapping Project (VMap) as a base. This mapping project was completed for the Northern Region of the Forest Service in April 2004, and provides a geospatial database of vegetation and land covers. These datasets were produced following consistent analytical logic and methods and mapped continuously across all ownerships. From this, four GIS layers were produced:

1. Lifeform
2. Tree Dominance Type
3. Tree Diameter Class
4. Tree Canopy Cover

Refer to the Northern Region Vegetation Mapping Project Summary Reports and Spatial Datasets, April 2004, for detailed information on how these vegetation layers were developed.

The VMap layers of Tree Dominance Type, Tree Diameter Class, and Tree Canopy Cover were used in developing the KIPZ Existing Vegetation layer. Other sources of data included:

Vegetation Response Units (VRU) – these are units of land with vegetative communities that have broadly similar disturbance responses and successional pathways and that produce similar landscape-scale vegetation patterns.

Water bodies – areas of water (e.g., ponds, lakes, and reservoirs) greater than five acres in size.

Plantations – this information was developed using the Forest's Timber Stand Management Record System (TSMRS) database and associated stands coverage.

Wildfire – areas with wildfire by intensity level for the past 10 years (1993 – 2003).

Old Growth – the Forest old growth map; for the IPNF, included codes 2, 9, 10, and 12; for the KNF, included all "effective" old growth.

The above coverages were combined with VMap to create a composite layer of existing vegetation attributes. Data was compiled in a manner that would meet the needs of subsequent modeling for vegetation treatment scheduling (refer to Appendix I of the CER). The existing vegetation layer was also used to compare to the range of variability (refer to Appendix B) to

understand treatments needed to move toward vegetation desired condition. A primary modeling tool that became the base for analysis was the **SIM**ulating **P**atterns and **P**rocesses at **L**andscape scaLEs (SIMPPLLE) model. As described in Appendix I, SIMPPLLE is a model that simulates changes in vegetation on landscapes in response to both natural disturbances and management activities. The vegetation data was converted to a format for use in SIMPPLLE in a manner that was compatible to subsequent vegetation treatment and timber production modeling with Spectrum and modeling of wildlife habitat using a Geographic Information System (GIS).

Once the coverages listed above were combined, the following rule sets were applied in converting the data into formats needed for subsequent modeling. These rule sets were developed using a panel of experts (Tom Martin and Art Zack from the Idaho Panhandle National Forests and Dan Leavell from the Kootenai National Forest). Refer to the Plan's analysis file for a detailed discussion of the rule sets for SIMPPLLE Vegetation Type and Habitat Type Group.

INVENTORY DATA

The National Forest Inventory and Analysis (FIA) Program provides a congressionally mandated, statistically based, continuous inventory of the forest resources of the United States. Since 1930, the FIA program has been administered through the Research and Development branch of the Forest Service, which makes it administratively independent from the National Forest System. On the IPNF and KNF, the FIA Program is administered by employees of the Interior West Forest Inventory and Analysis work unit, which is headquartered at the USFS Rocky Mountain Research Station in Ogden, Utah.

The FIA Program collects, analyzes, and reports information on the status and trends of America's forests (e.g., how much forest exists, where it exists, who owns it, and how it is changing), providing data related to the changing conditions of trees and other forest vegetation. The FIA Program combines this information with related data on insects, diseases, and other types of forest damages and stressors to assess the health and potential future risks to forests. The Program also projects these trends through the next 50 years and displays how various management scenarios would affect forest vegetation through time.

This information can be used in a variety of ways including evaluating wildlife habitat conditions, assessing the sustainability of ecosystem management practices, and supporting planning and decision making activities. This information is also essential for evaluating whether current forest management practices and policies are sustainable in the long term.

FIA inventory design is based on the standardized national FIA grid of inventory plots that covers all forested portions of the United States (all ownerships). FIA protocols specify sample plot locations within this systematic grid and this, as well as data collection standards, are strictly controlled by FIA protocols. There are also stringent quality control standards and procedures, carried out by FIA personnel of the Rocky Mountain Research Station. These controls and protocols have been designed to assure that there is no bias in sample design, plot location, trees selected for measurement, or the measurements themselves. Furthermore, the sample design and data collection methods are scientifically designed, publicly disclosed, and repeatable. Data collection protocols are publicly available on the internet (http://www.fia.fs.fed.us/).

FIA does not provide a complete annual census of every tree on every acre in a national forest. Rather, the FIA design provides a statistically sound representative sample designed to provide unbiased estimates of forest conditions at large and medium scales. This inventory design is appropriate for making estimates of selected forest attributes at the scale of a national forest, or

larger areas of forested land. The use of FIA data in broad-scale assessments, such as forest planning, has been documented as a valid and reliable data source (Czaplewski 2004).

Estimates of vegetation attributes on the Forests were compiled using the Forest Inventory and Analysis (FIA) data. The FIA data used for forest planning was collected from 1993 to 1995 for the KNF and 1999 to 2002 for the IPNF. Data collected on the KNF was summarized and documented in the report *Forest Resources of the Kootenai National Forest* (Wilson and Miles, 2000).

The FIA data was used in several analyses for the forest plan revision. The use of this data is documented with each analysis. See Appendix B for documentation on the use of FIA data for comparing existing vegetation to the range of variability. See Appendix C for documentation on the use of FIA data in determining the amount of old growth on the Forests. See Appendix I for documentation on the use of FIA data in building the timber growth and yield tables.

COMPARISON OF THE EXISTING VEGETATION COVERAGE AND FIA DATA

It is important to understand that there will be differences in existing vegetation data acquired from VMap and FIA since each is used for different purposes. Vegetation Project Mapping is utilized when vegetation *spatial orientation* and *location* are critical points of consideration. Alternatively, when vegetation *attributes without spatial location* are the essential elements of information being analyzed Forest Inventory Analysis data is used. As a means of better understanding the similarities and differences of these data sources, a Forest-wide summary was constructed for each data source by species group and size class (refer to Table G-3).

Table G-3 Comparison of Forest-wide VMap and FIA by Size Class and Dominance Type

Size Class	VMap (%of Forest)		FIA (% of Forest)	
	KNF	IPNF	KNF	IPNF
Seed/sap	15	12	20	8
Small	22	11	27	24
Medium	34	40	30	34
Large	30	38	23	34
Dominance Type	**VMap (%of Forest)**		**FIA (% of Forest)**	
	KNF	**IPNF**	**KNF**	**IPNF**
Ponderosa pine	9	4	3	2
Douglas-fir	15	17	32	27
Lodgepole pine	20	9	10	6
Western larch	20	18	18	10
Grand fir mix	10	32	13	30
White pine	2	1	1	2
Subalpine fir mix	24	18	23	23

While similar results are displayed for both data sources with relation to size class and dominance type some dissimilarities exist. For example, it appears the interpretation of Douglas-fir and western larch from the VMap data may be inaccurate, when compared with the FIA data. The VMap included an intolerant mixed species stratum that was crosswalked to various species,

based on VRU. There is also some dissimilarity in size class, based on how the data was collected for each data source. The overall trends for comparison to historic data, however, remain the same for both data sets since both indicate that the forest contains too much Douglas-fir, not enough western larch, too much medium size class and not enough large size class.

LITERATURE CITED

Czaplewski, Raymond L. 2004. *Application of Forest Inventory and Analysis (FIA) Data to Estimate the Amount of Old Growth Forest and Snag Density in the Northern Region of the National Forest System.* Not published.

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