

MODELED NATURAL RANGE OF VARIATION, EXISTING CONDITION, and DESIRED CONDITION VEGETATION ATTRIBUTES AND NATURAL DISTURBANCES

Introduction

This document contains the final graphs displaying the natural range of variation (NRV) for vegetation and major disturbances as modeled using the SIMPPLLE model (completed in the fall of 2014). The purpose of the NRV analysis was to inform the development of desired vegetation conditions for the Flathead revised forest plan. Existing and desired conditions are displayed on the graphs for the vegetation attributes. The NRV for fire and insect/disease disturbance are also included in this exhibit. Other exhibits in the planning record describe in detail the modeling process and the development of the desired conditions. The raw data output files resulting from the SIMPPLLE analysis of NRV are also provided as an exhibit in the planning record.

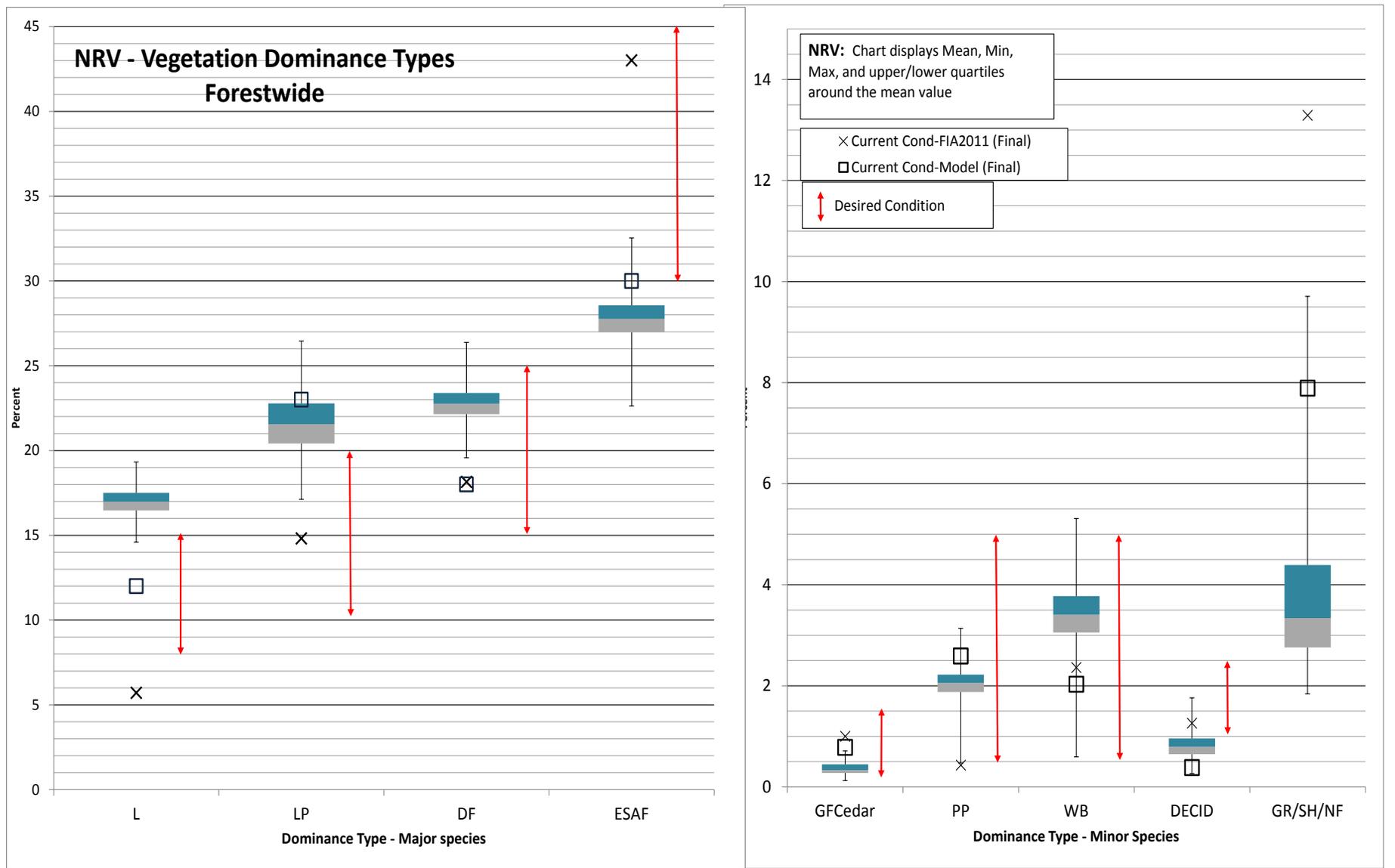
Vegetation Attributes

The following graphs display the modeled NRV for **Vegetation Dominance Types, Tree Species Presence, Forest Size Classes, and Forest Canopy Cover**. The existing condition and desired condition are also displayed on the graphs. Development of the DCs for all vegetation components were governed by the prevailing concept of maintaining ecosystem and forest resilience, and informed by the evaluation of NRV. Refer to exhibit 00259 for detailed discussion of all the factors considered in the development of desired conditions for vegetation.

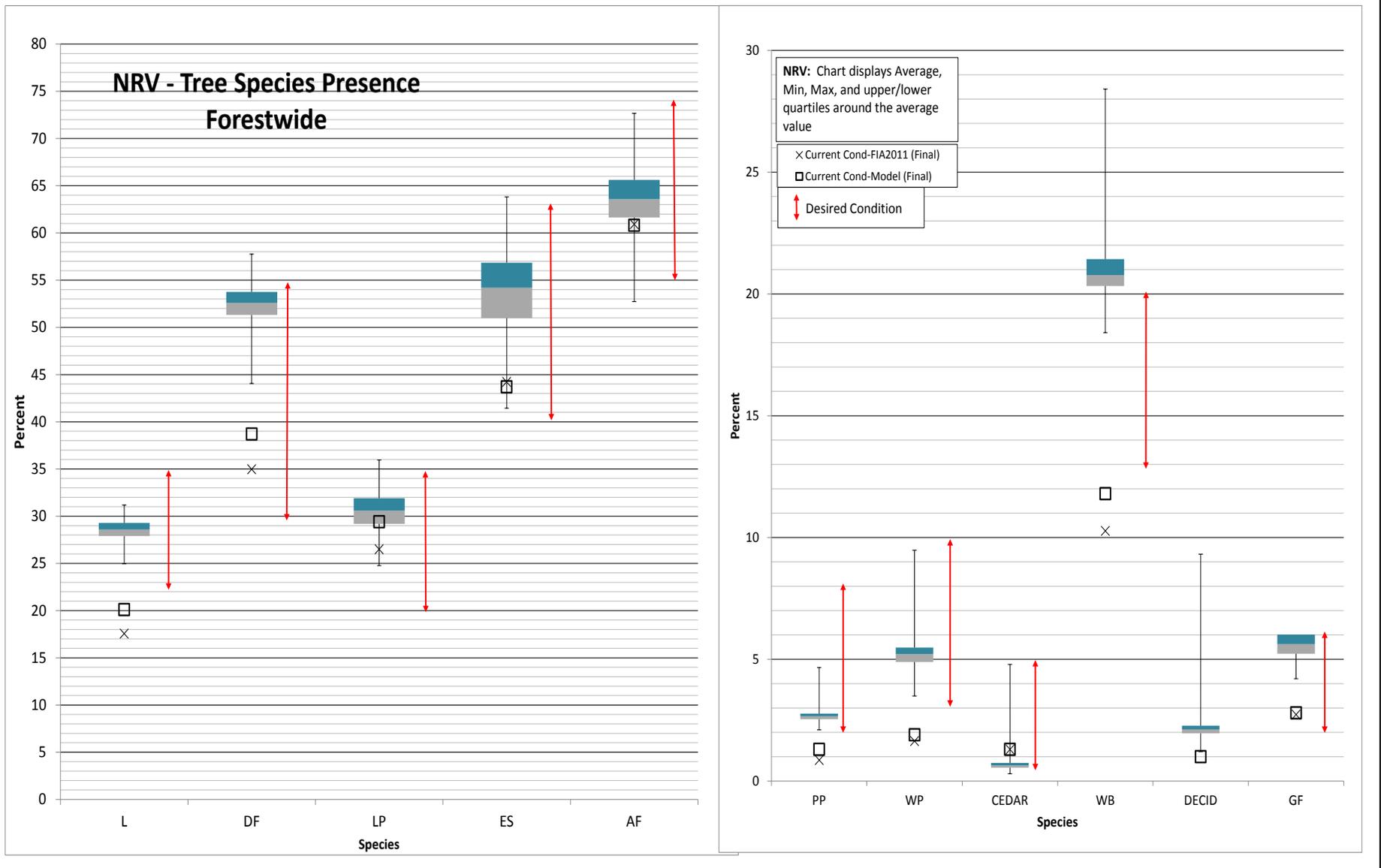
The graphs that follow display the following information:

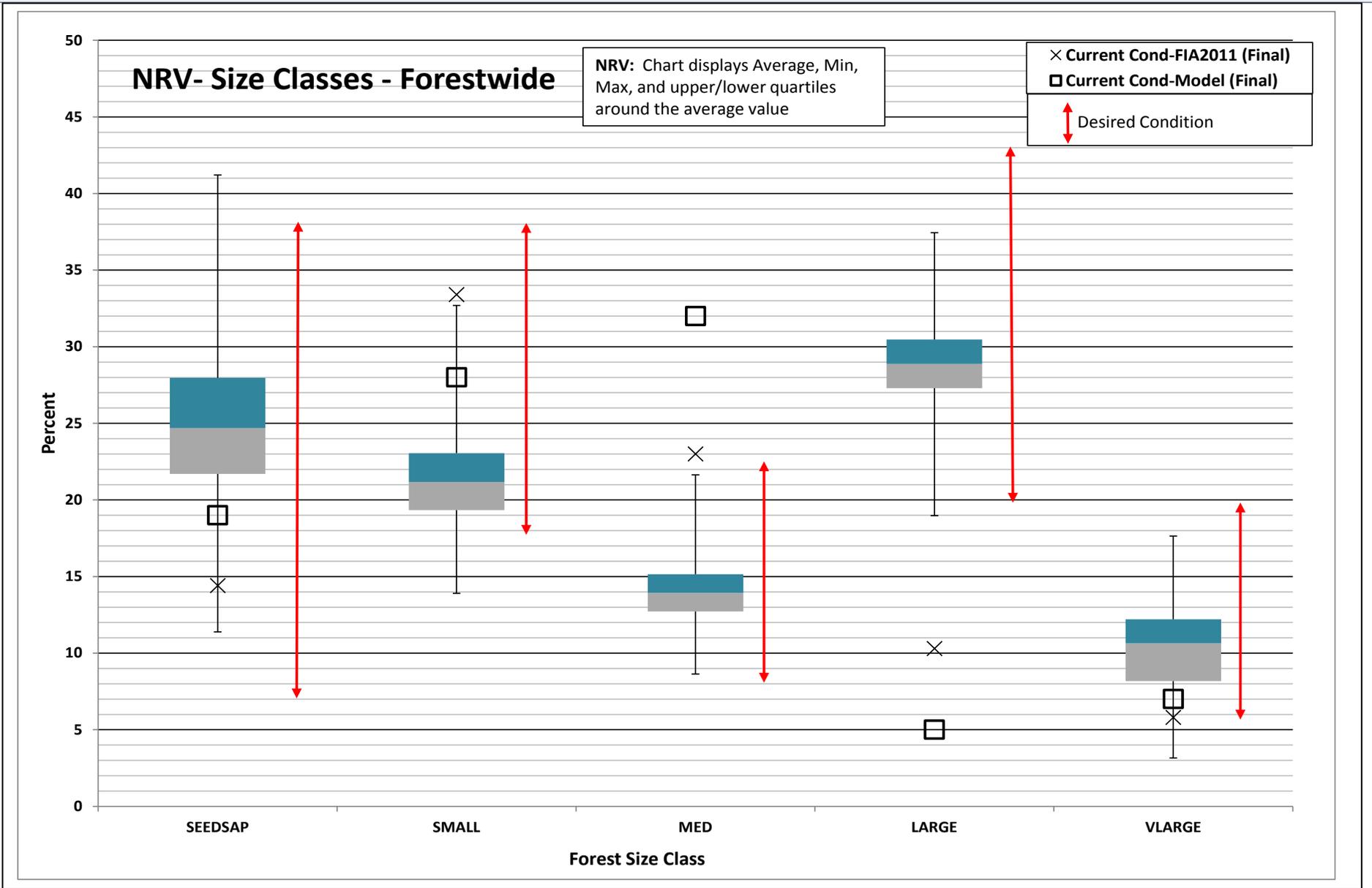
-  = Modeled natural range of variation (NRV) as conducted using the SIMPPLLE model, showing the minimum, maximum, and upper/lower quartiles (shaded boxes) around the mean for vegetation condition. For additional information, refer to exhibits discussing model development and the development of DCs.
-  = Existing vegetation condition, originating from VMap as adapted for use in the SIMPPLLE model. This is the dataset used for the modeling of NRV and the projection of future vegetation conditions for the EIS analyses. The original VMap layer was refined and updated throughout the plan revision process, including corroborating with FIA estimates and identifying polygons in the very large tree size class. Refer to other exhibits that discuss model development.
- X** = Existing vegetation condition from FIA 2011 Hybrid data base. This is the dataset used to estimate existing vegetation conditions for the Final EIS and Revised Forest Plan. FIA reports use the “R1 Broad Habitat Group” attribute within the R1 Summary Database for the estimates by potential vegetation group. Reports do not remove fire/harvested plots.
-  = The red arrows indicate the minimum and maximum desired conditions for the vegetation component (or in the case of forest canopy cover, the estimated NRV) as finalized for the Final EIS/ROD and revised forest plan. Desired conditions in the draft forest plan were adjusted for some vegetation components, based on new information. See other planning record exhibits that discuss desired condition development.

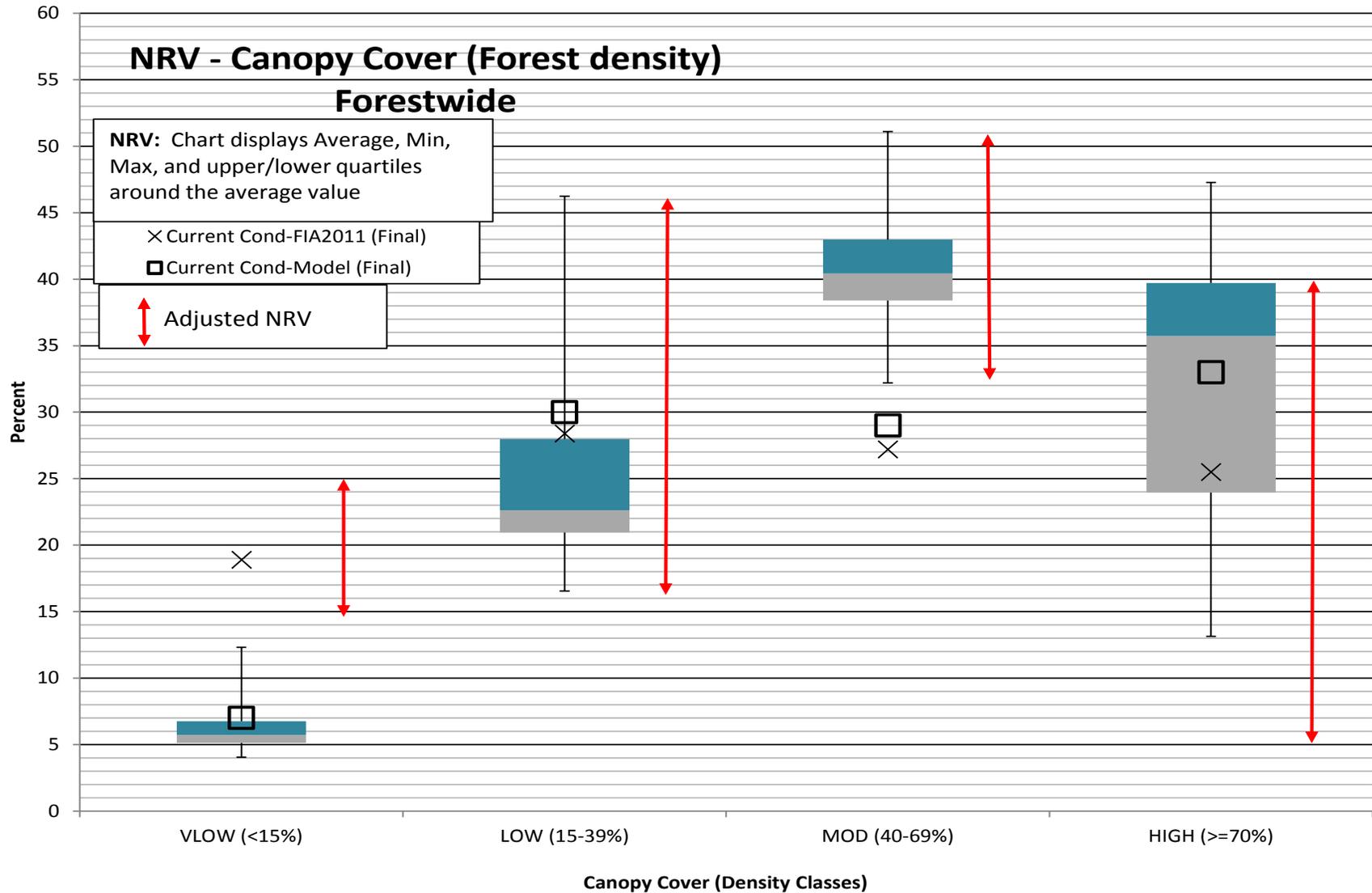
Flathead National Forest Revised Forest Plan and Final EIS

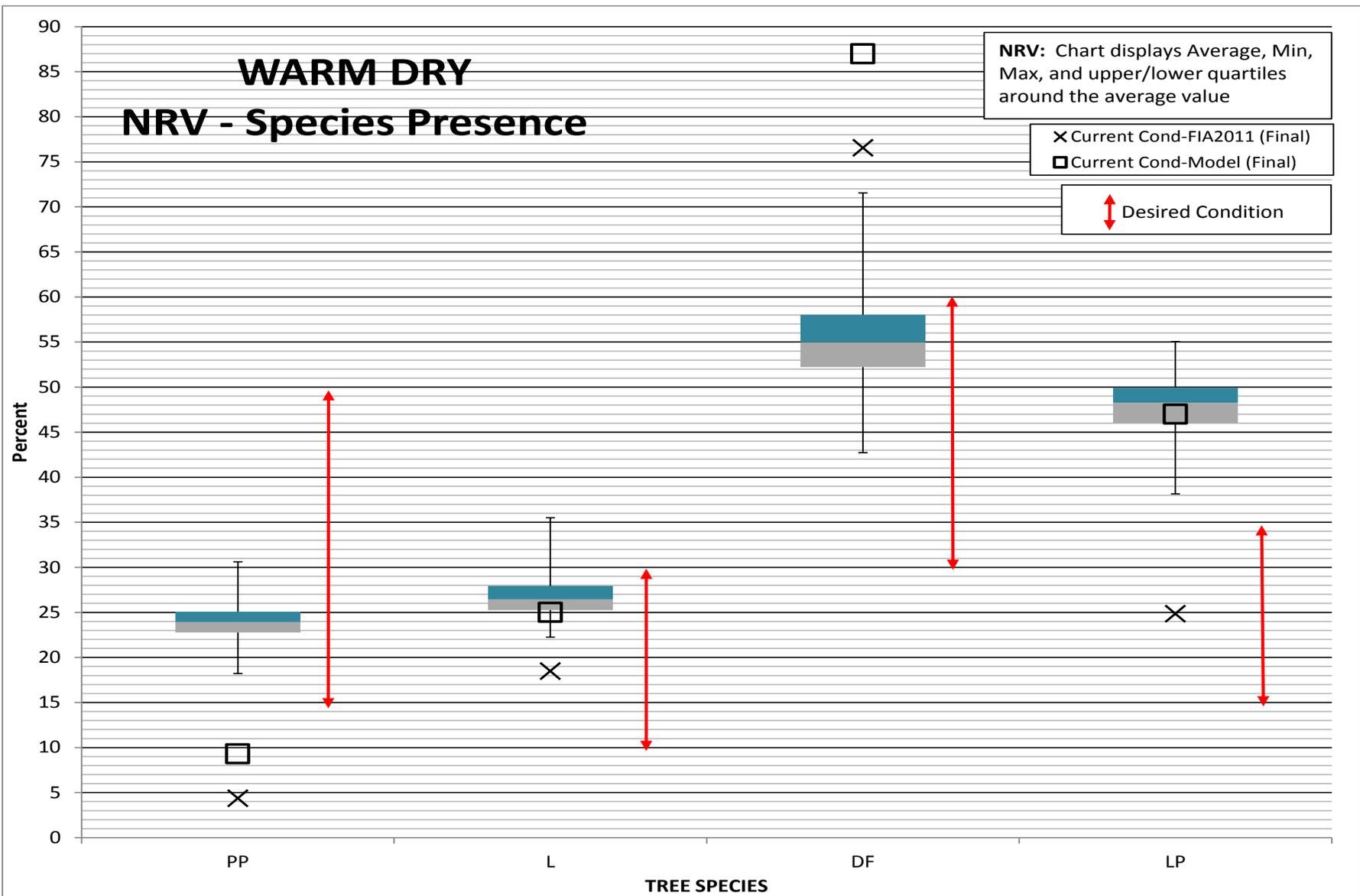


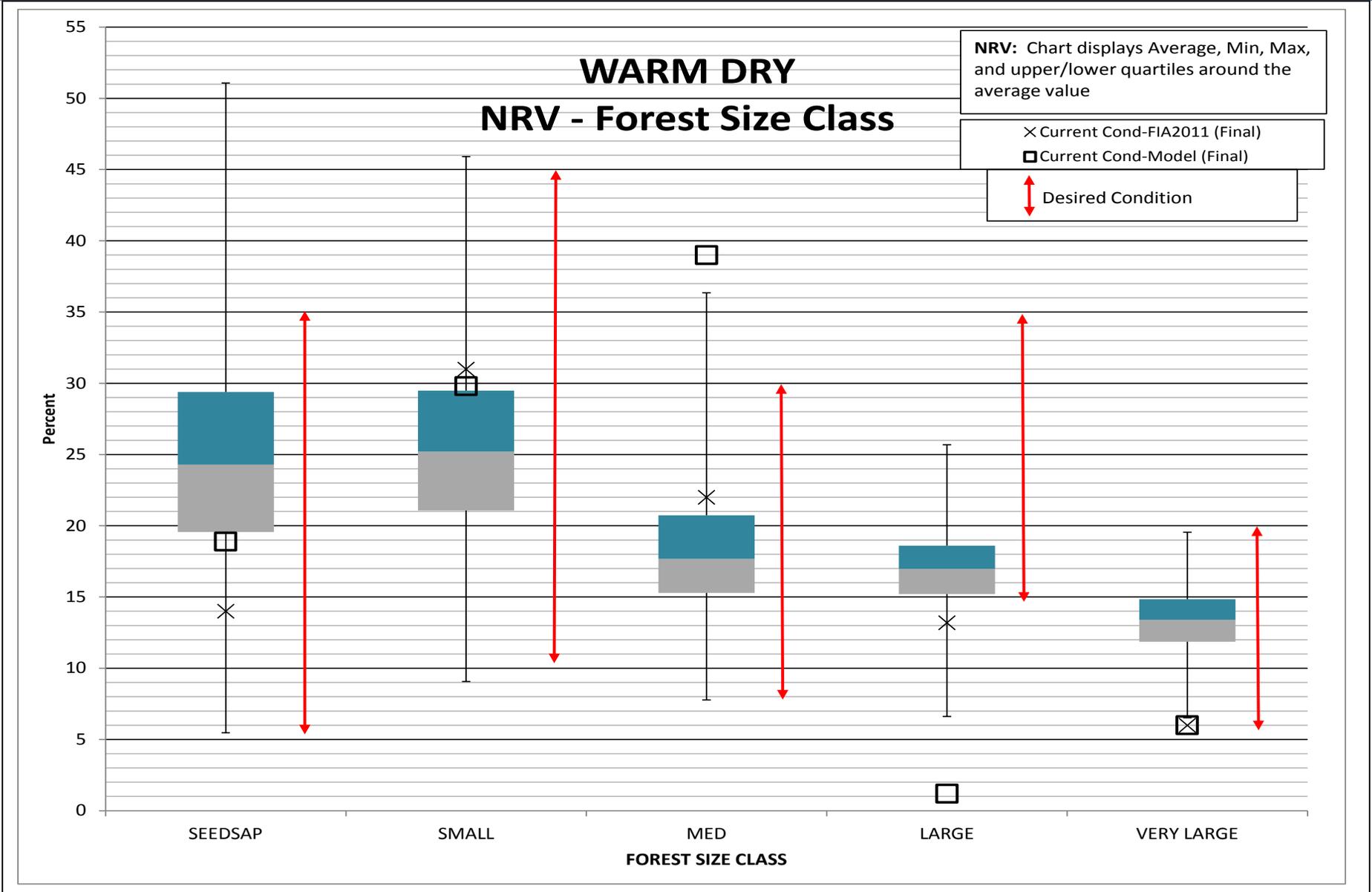
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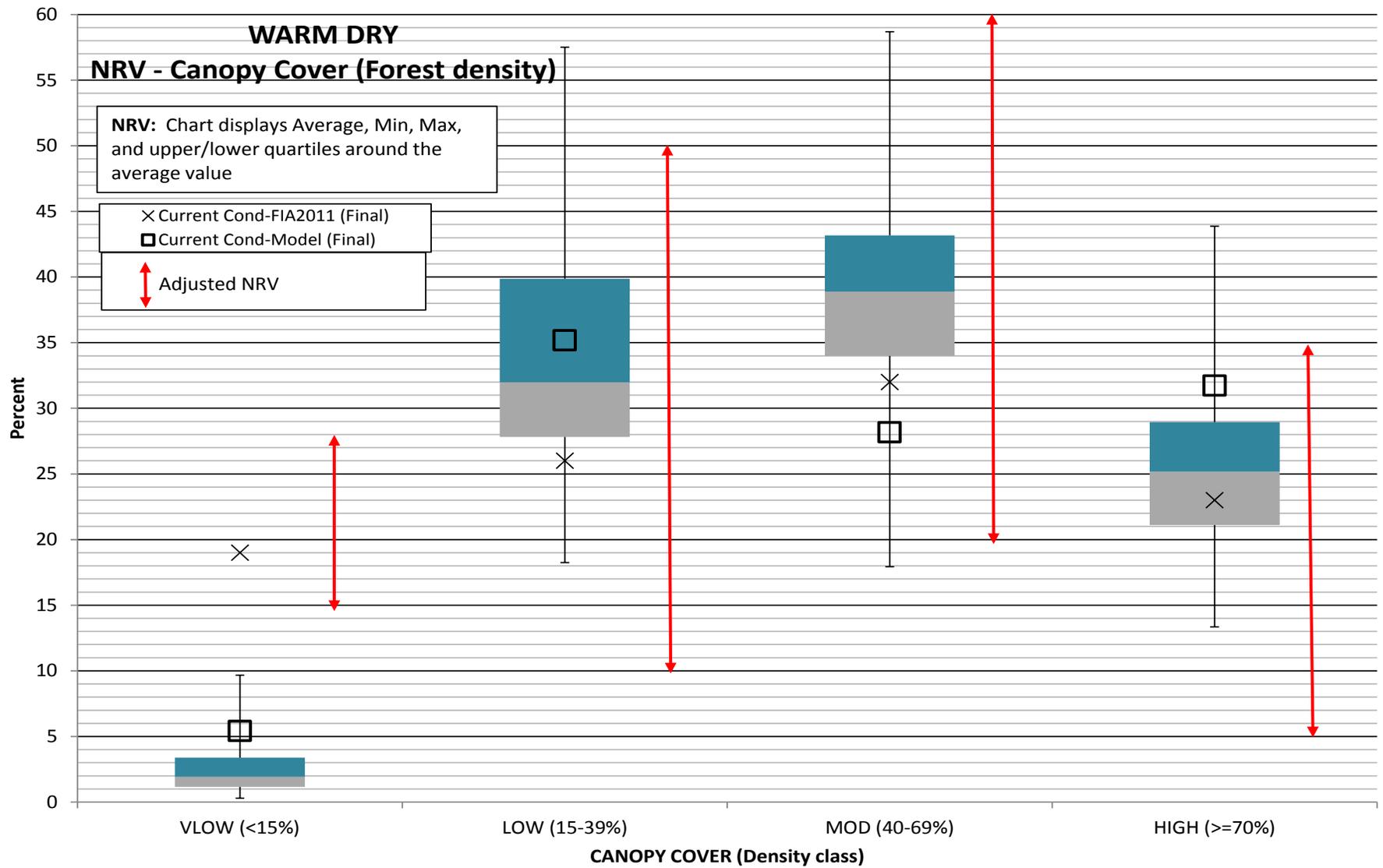


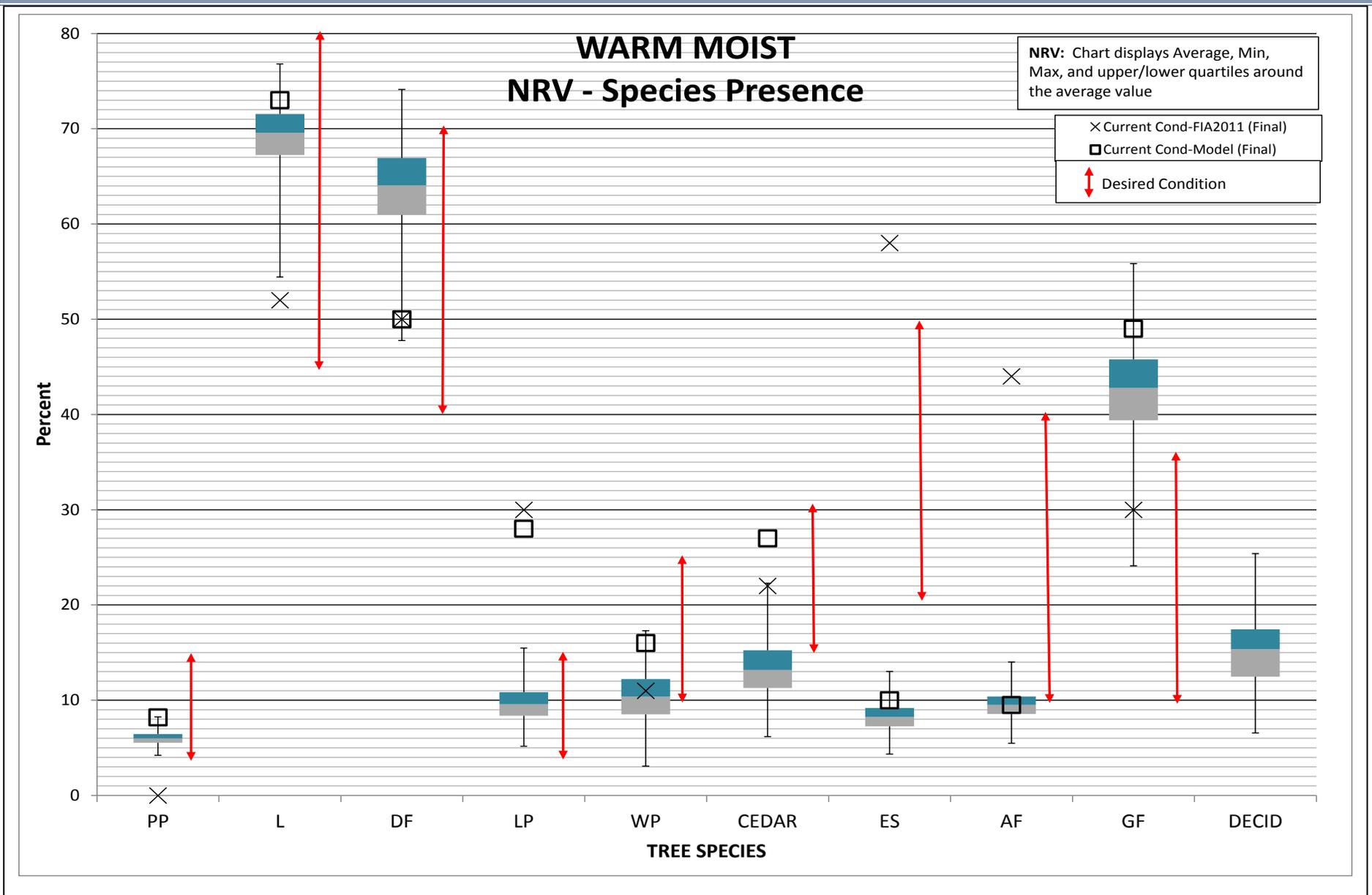


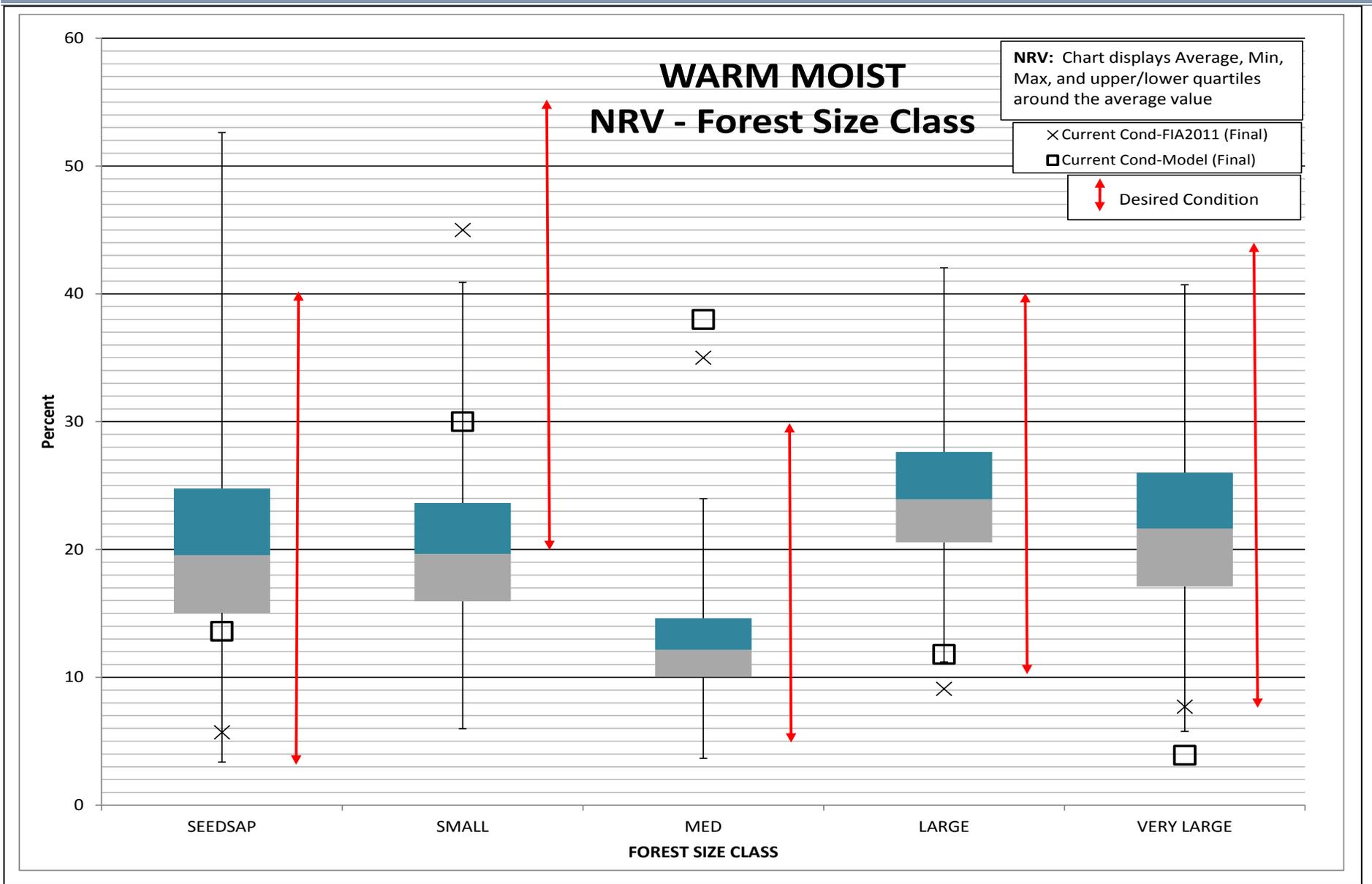


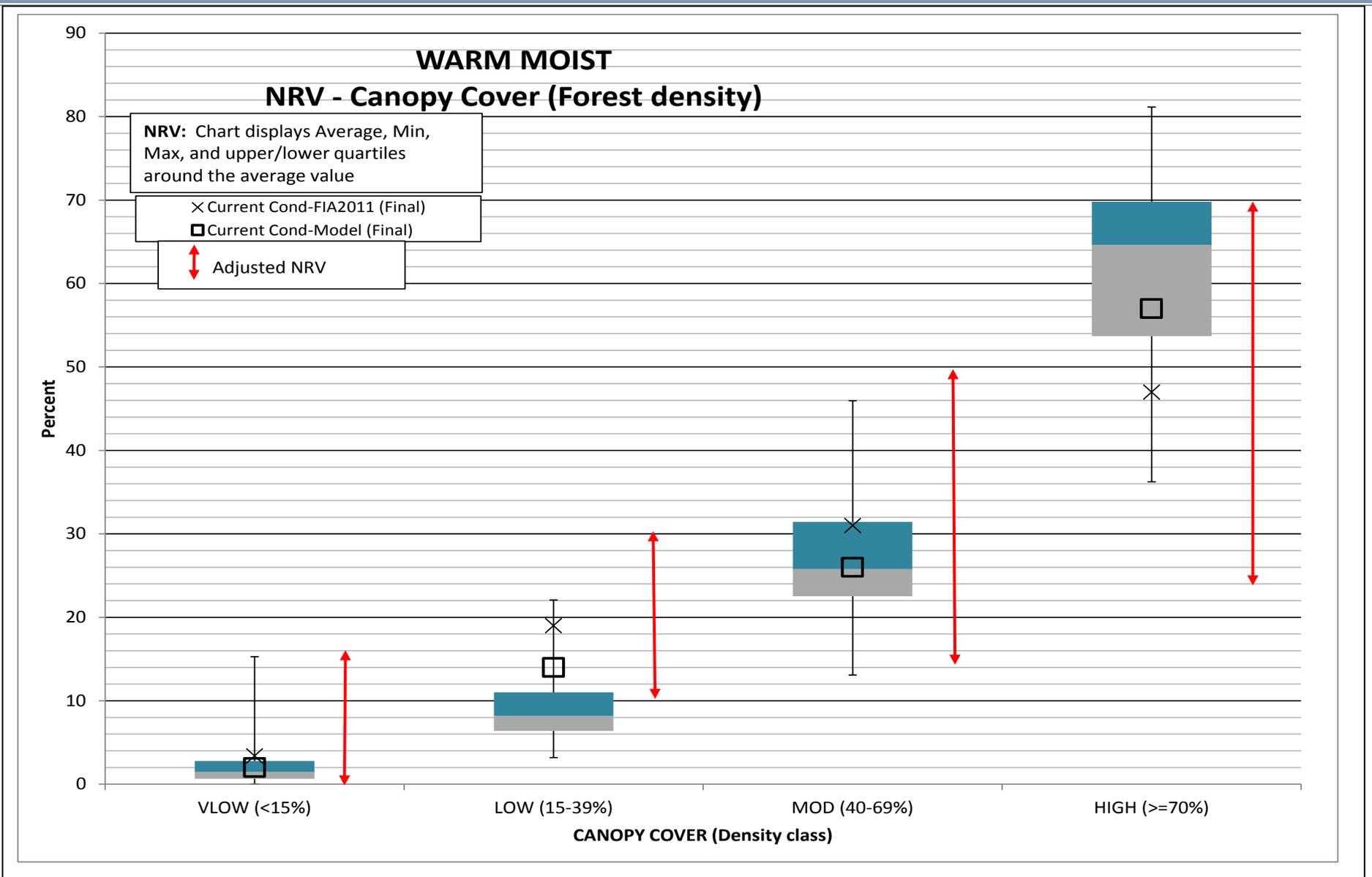


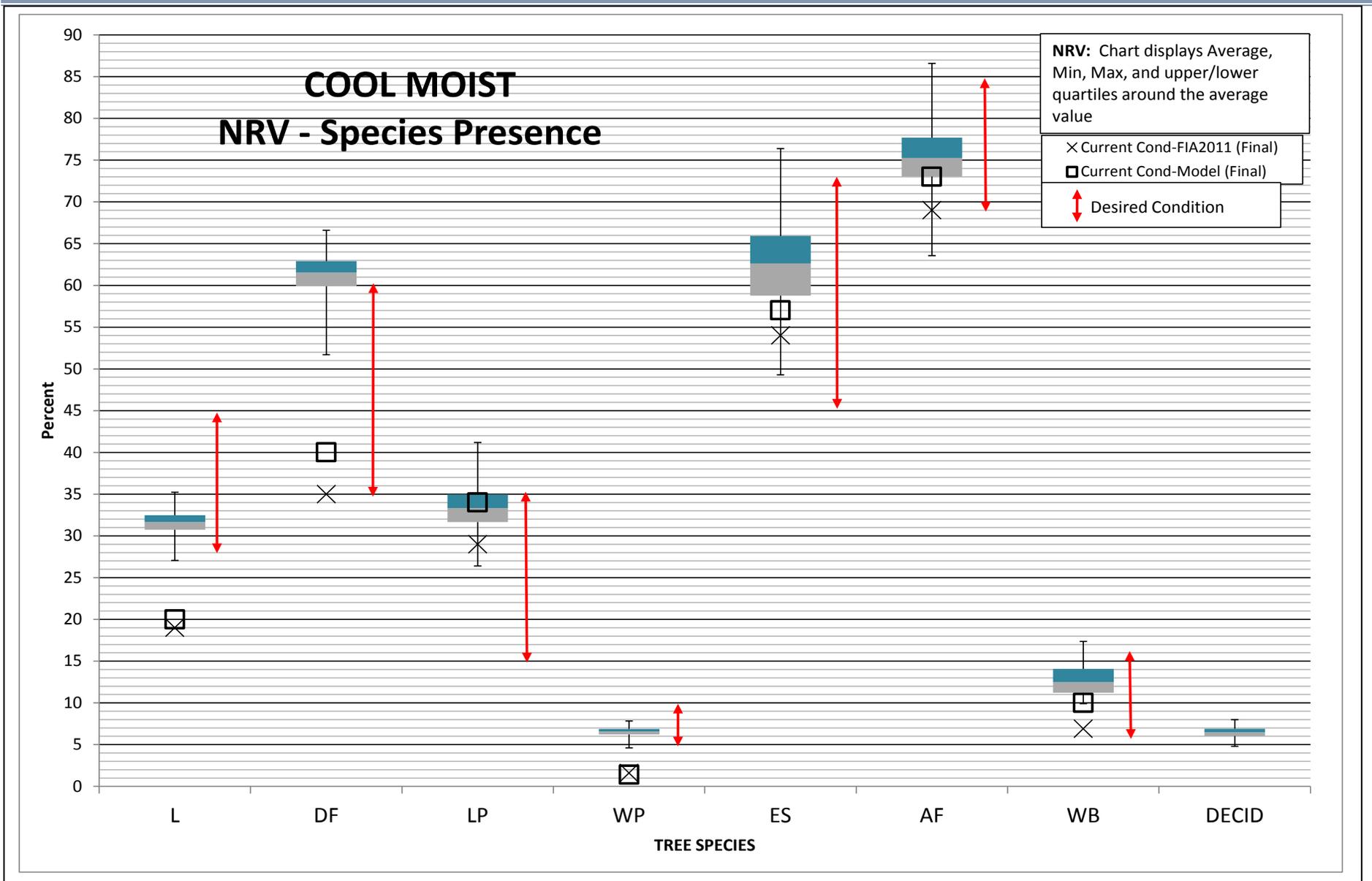


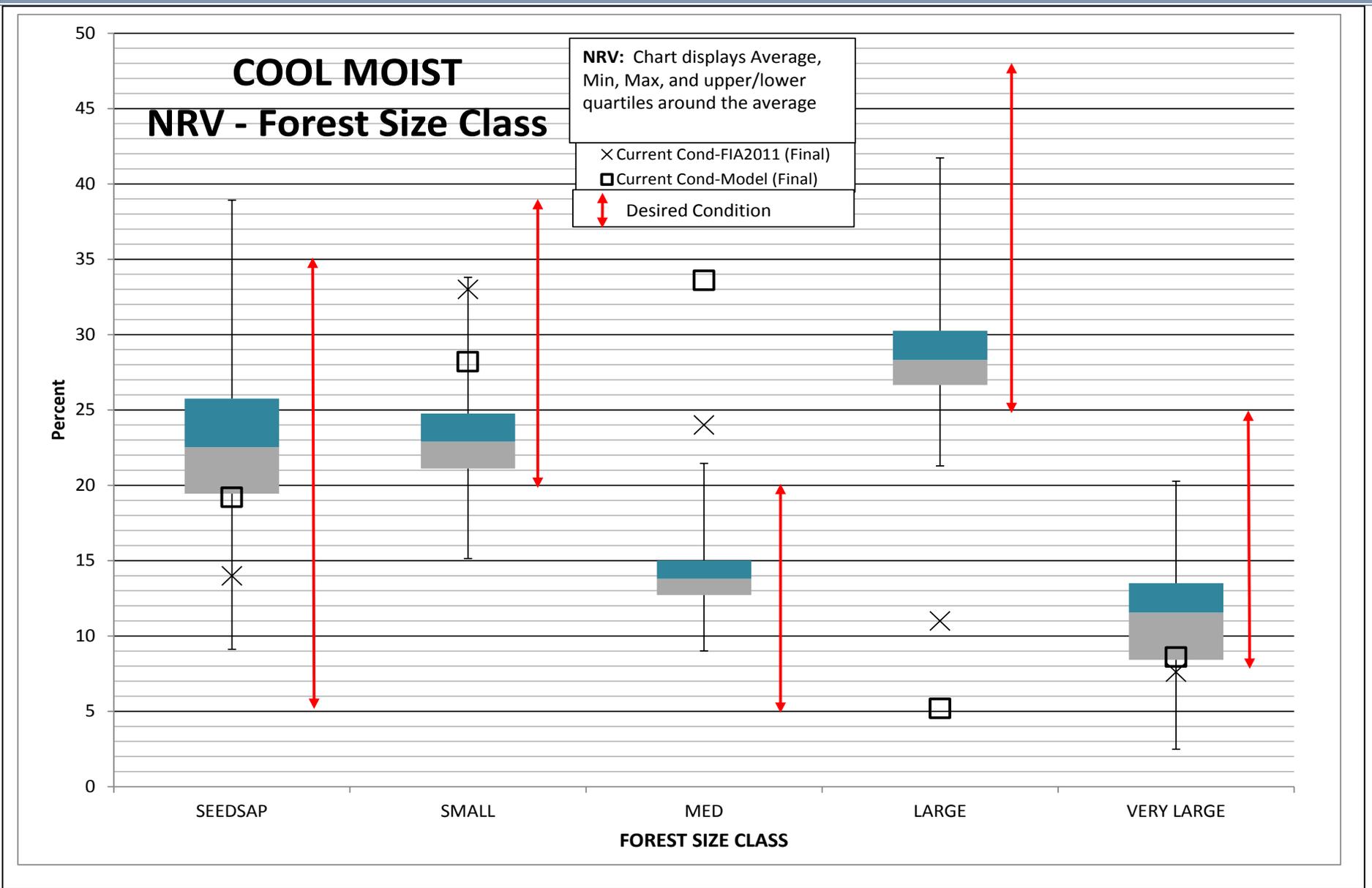


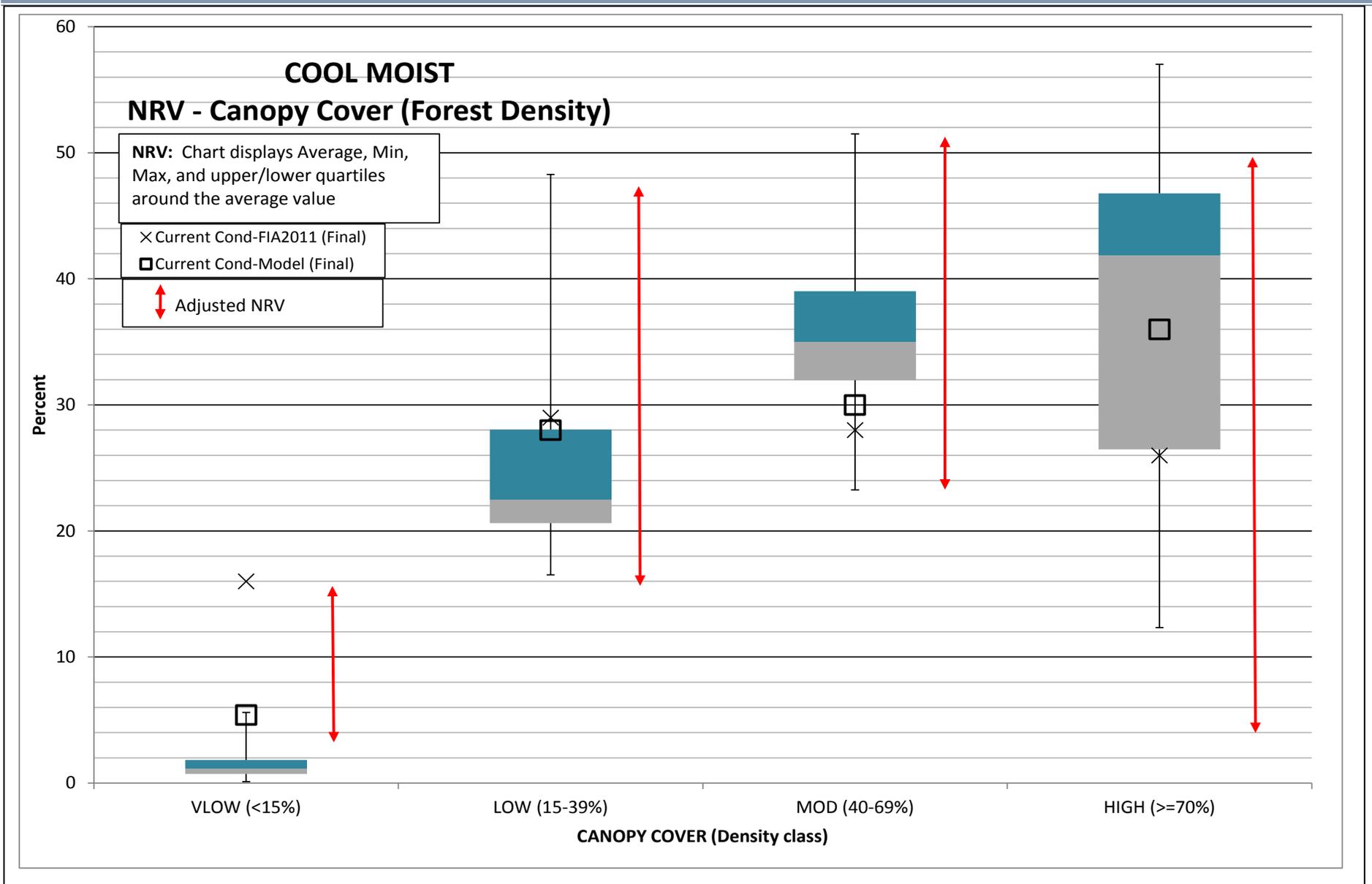


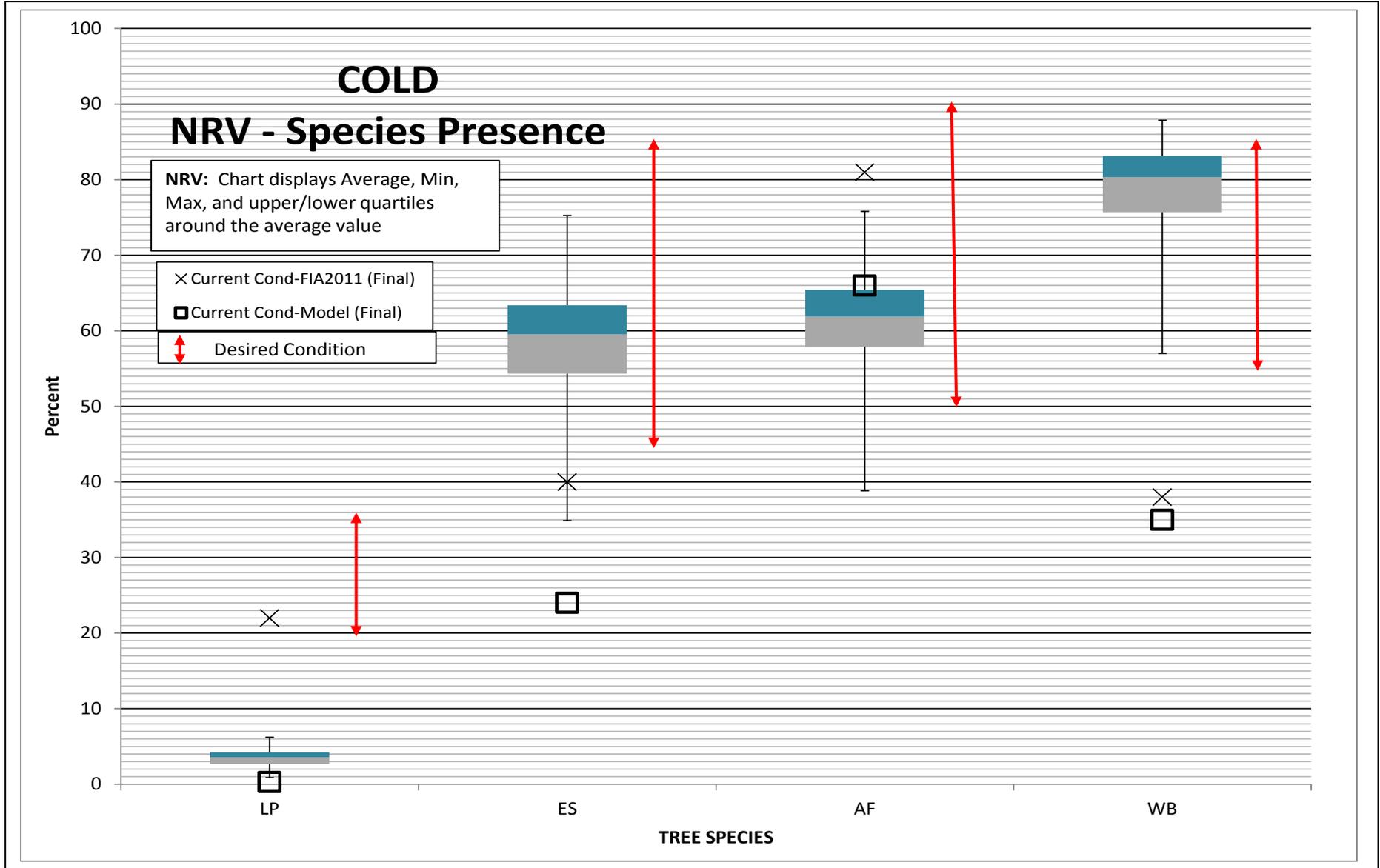


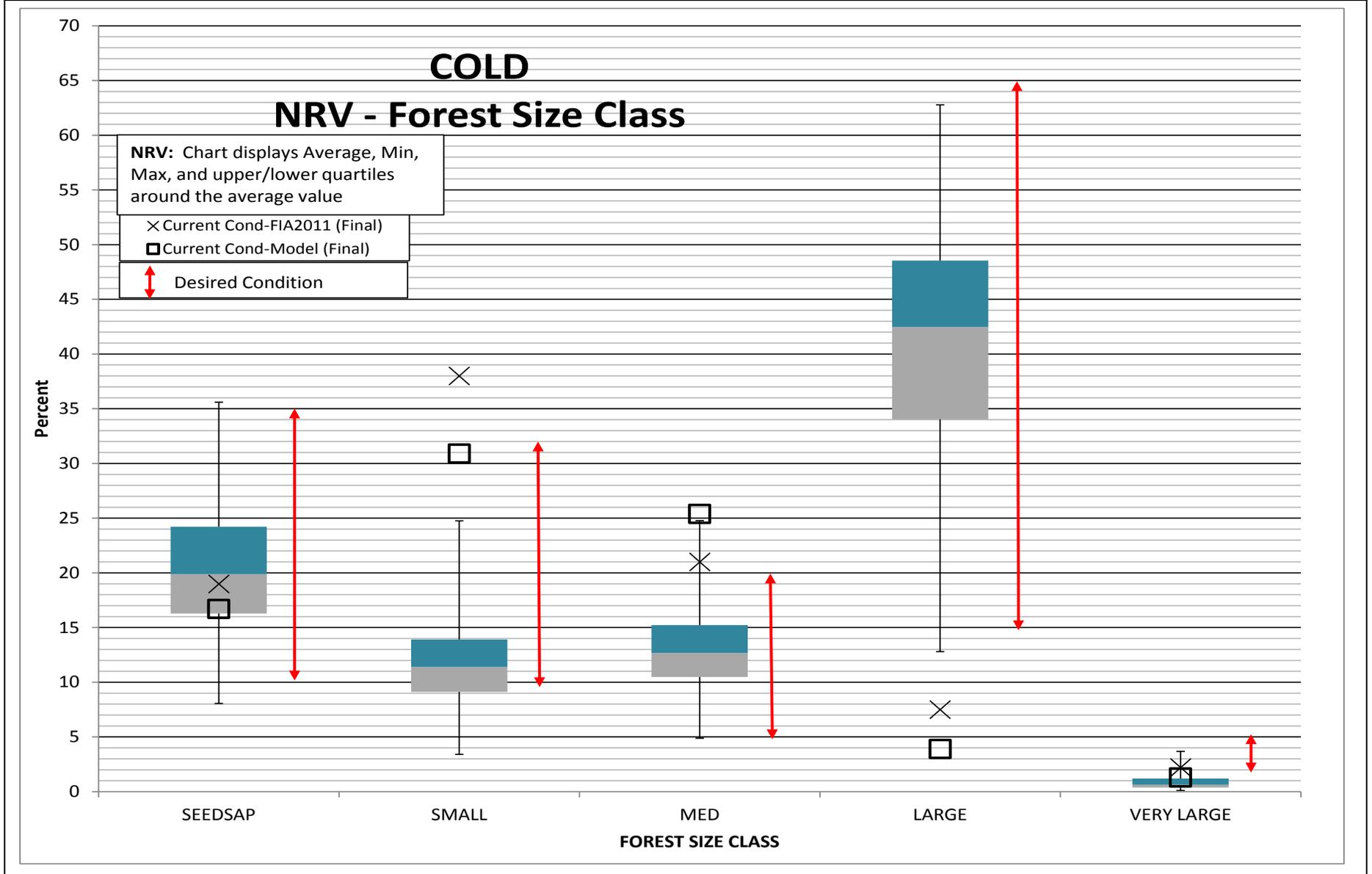


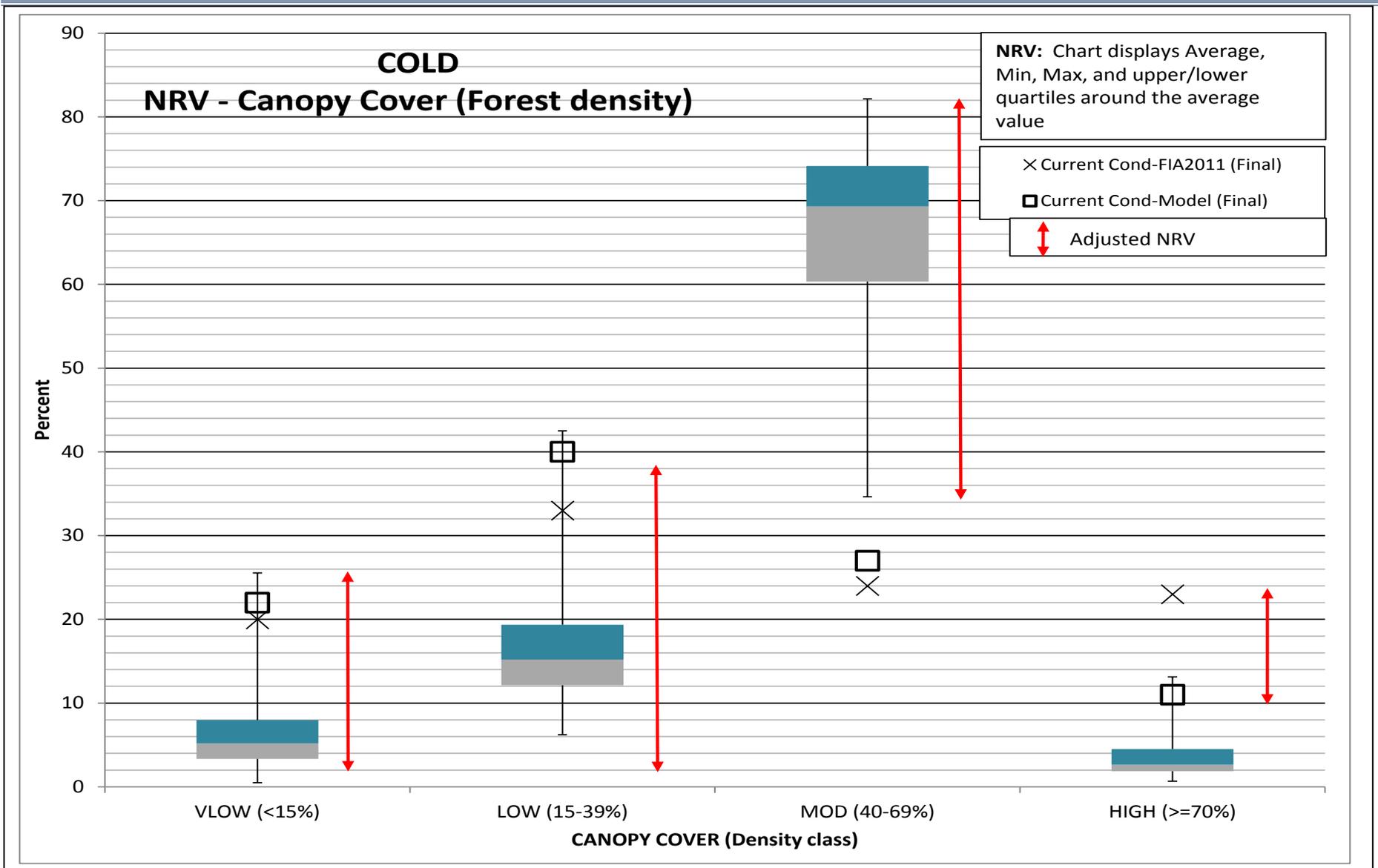












Major Disturbances

The following graphs show the modeled NRV for wildfire and for major insects and diseases. The following information is displayed:

Wildfire

- Proportion (percent) of area burned with wildfire by:
 - Fire severity class
 - Biophysical setting
 - Forest Dominance type and Size class
 - Fire Severity by geographic area and by wilderness/non-wilderness area
- Graph displaying historical (1889 to 2014) amount of fire on the FNF (from historical records)

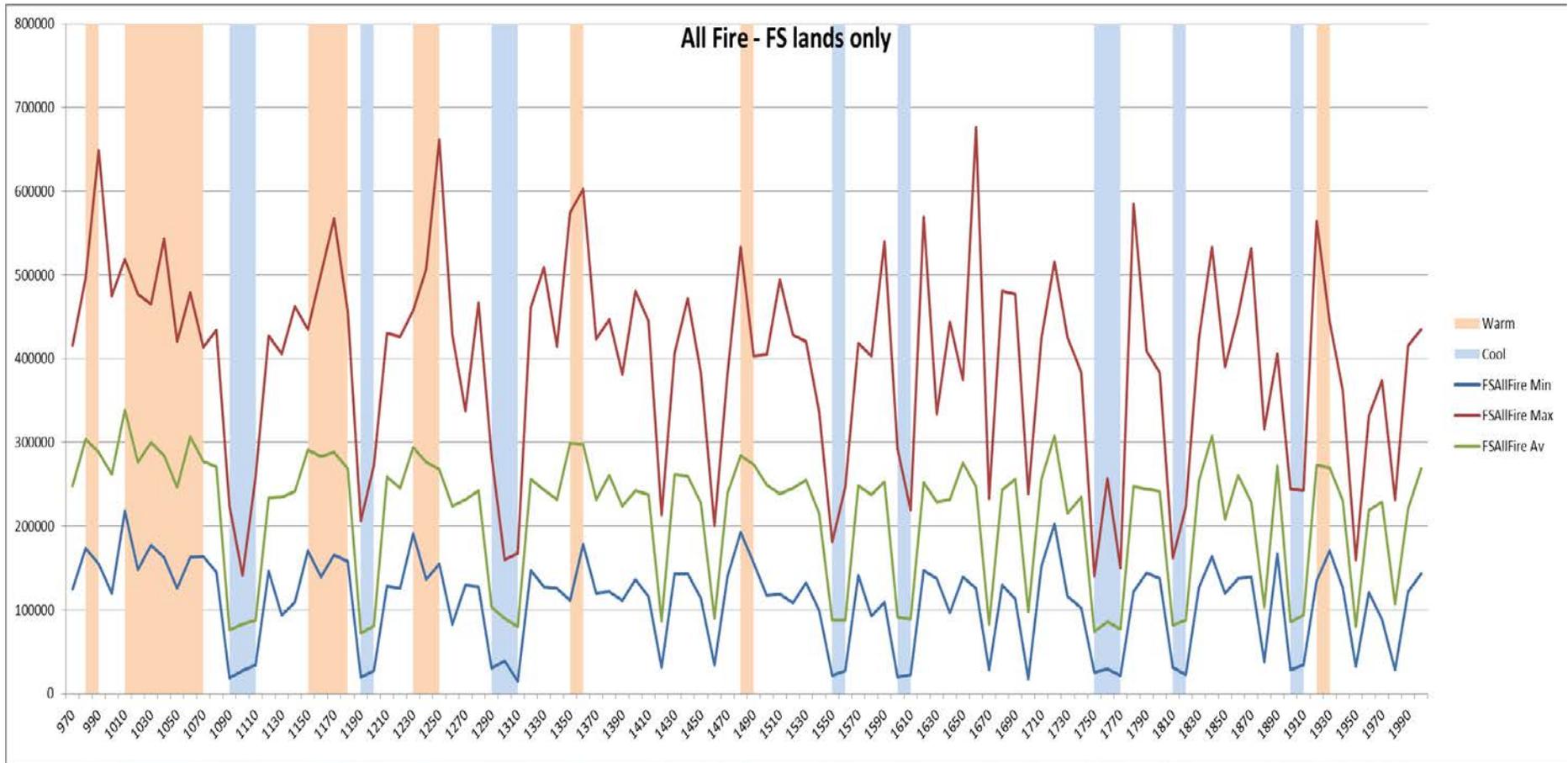
Insect and Disease

- Proportion (percent) of area with activity associated with the following insects and diseases:
 - Mountain pine beetle (on all species – LP, PP, WP)
 - Douglas-fir beetle
 - Spruce beetle
 - Western spruce budworm
 - Root disease

For purposes of determining percent of total forest acres affected by fire, the acres in the following graphs can be divided into the total of about 2,350,000 acres of Flathead NF land.

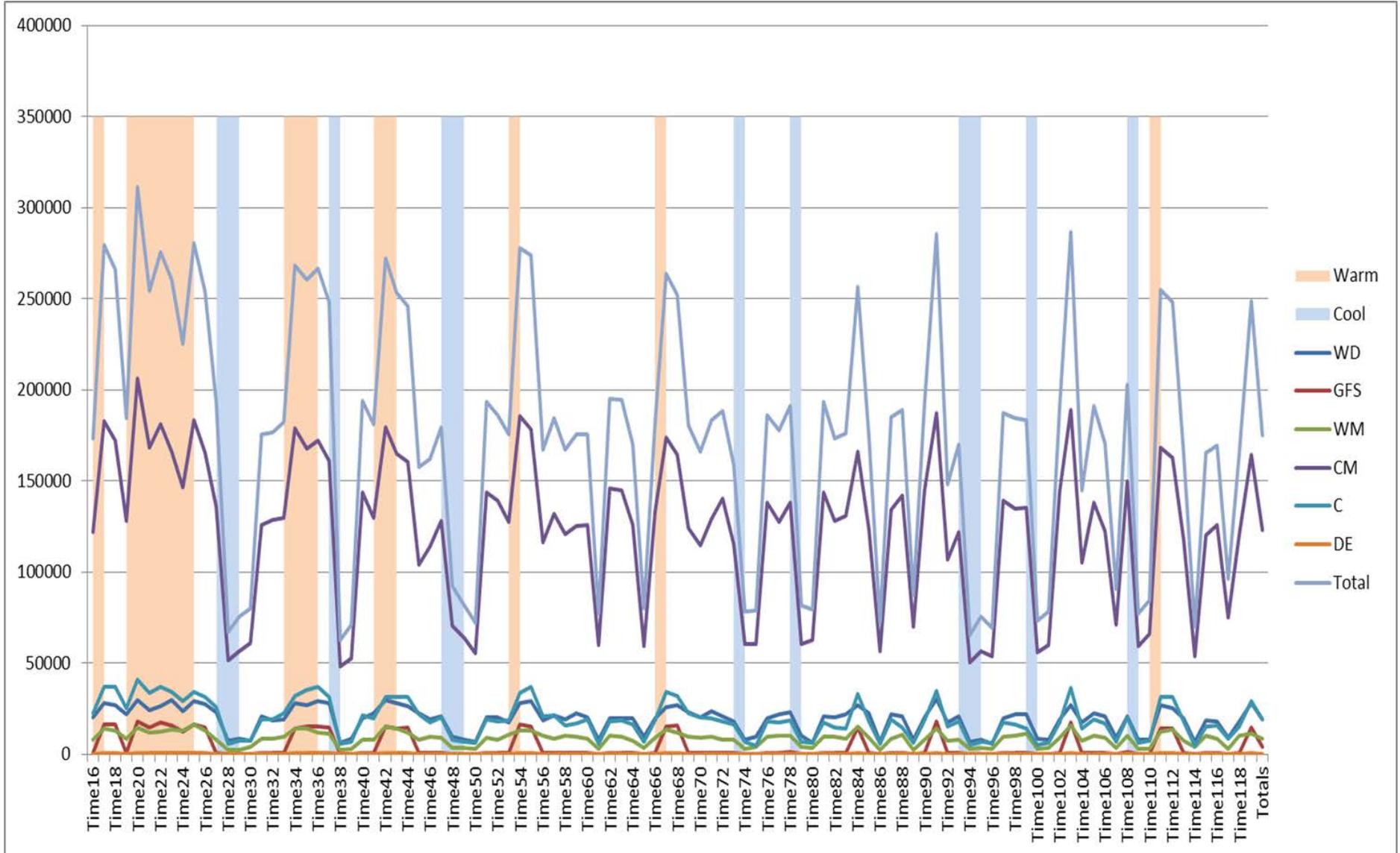
FIRE DISTURBANCE (SIMPPLLE analysis, Nov 2014)

All Fire types – Flathead National Forest lands Forestwide



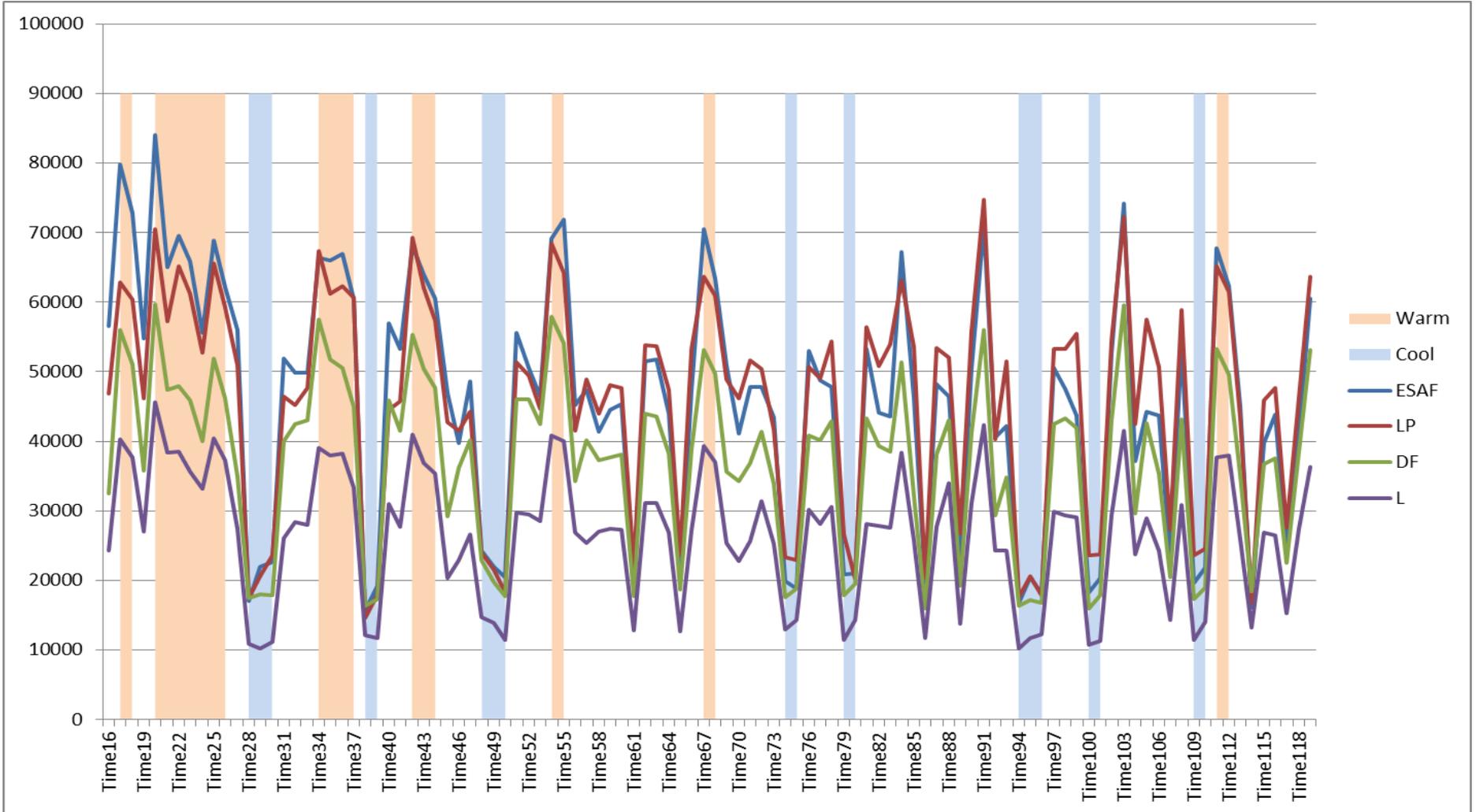
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Stand Replacing Fire Forestwide and by Biophysical Setting (FS lands)



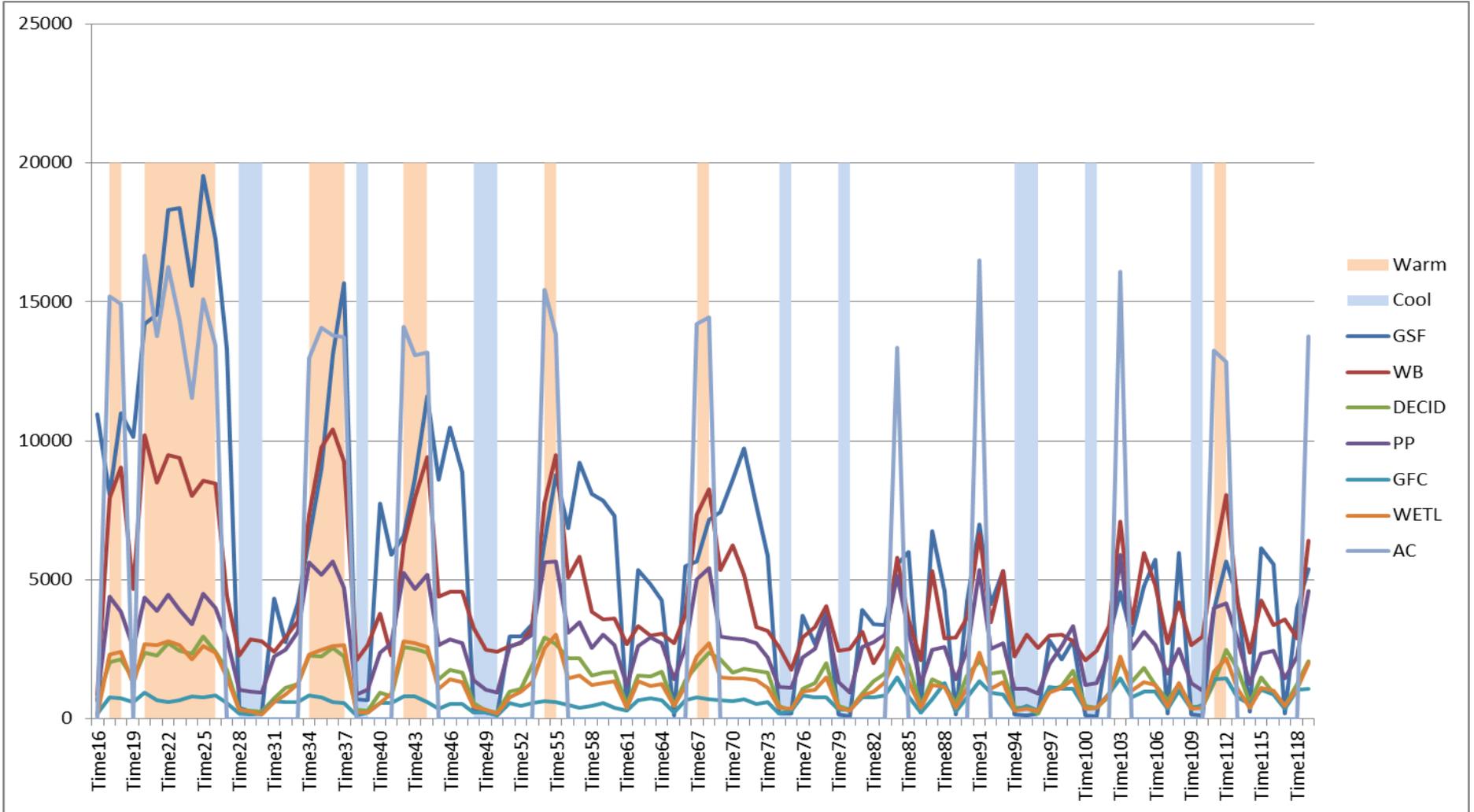
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Flathead NF Stand Replacing Fire Acreage by Dominance Type #1

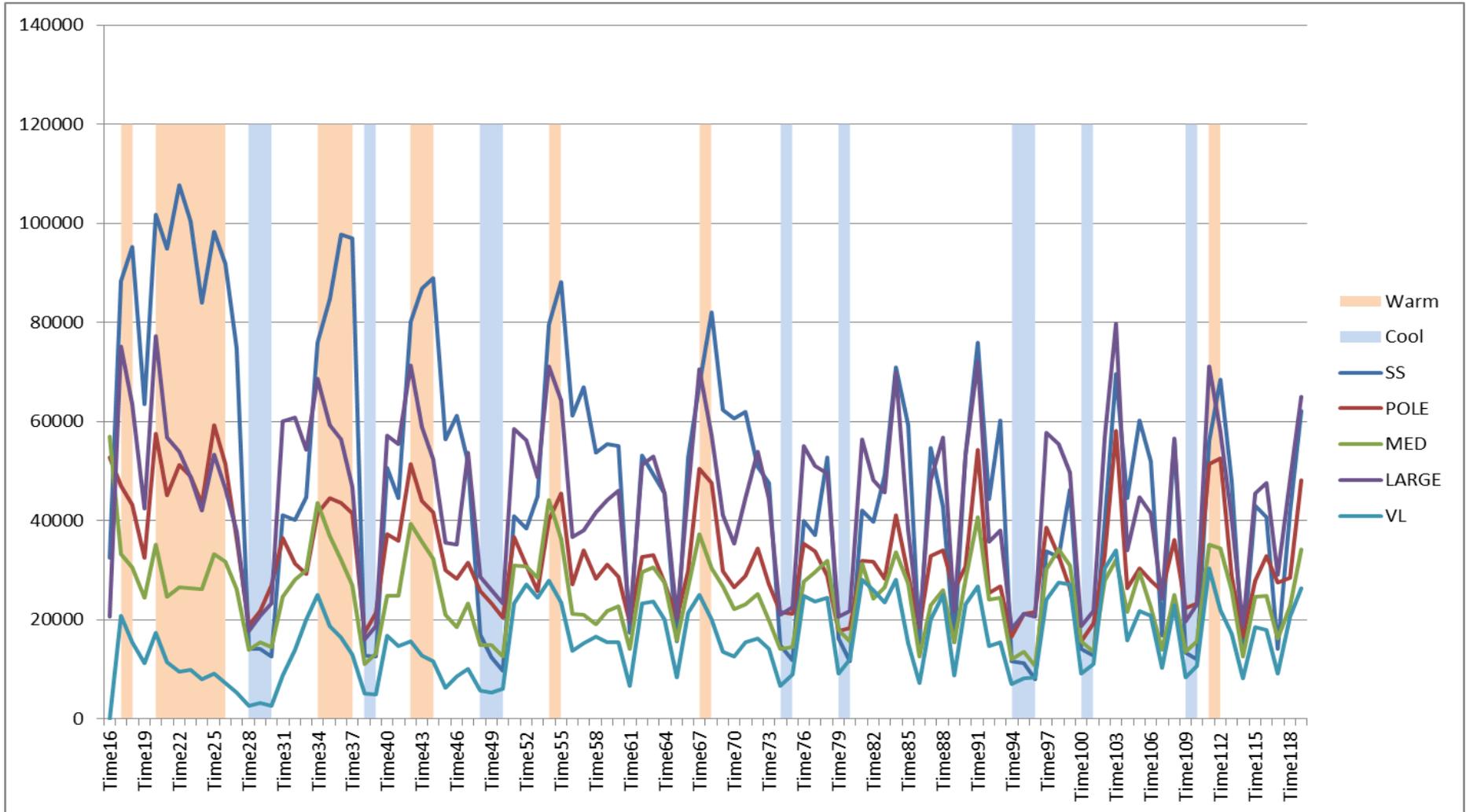


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Flathead NF Stand Replacing Fire Acreage by Dominance Type #2

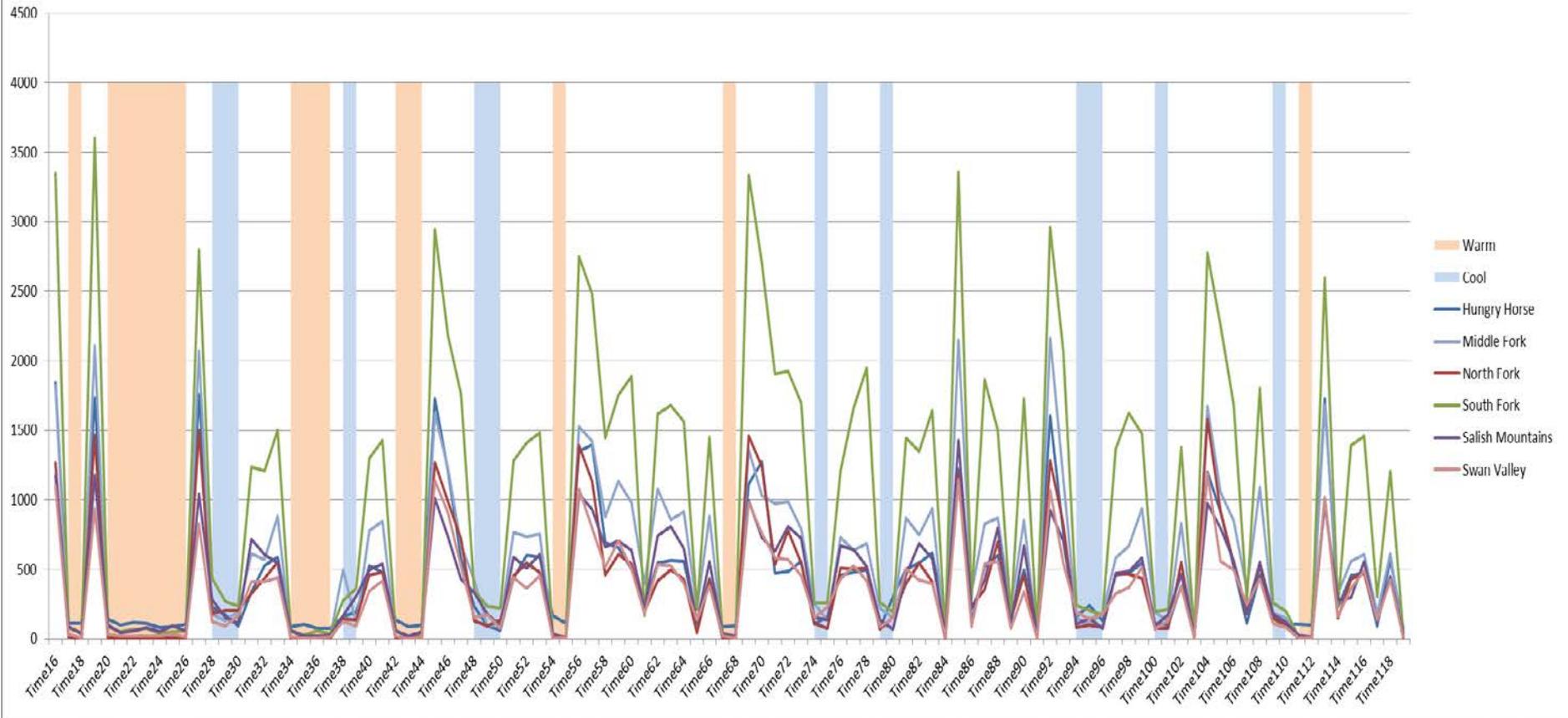


Flathead NF Stand Replacing Fire Acreage by Size Classes

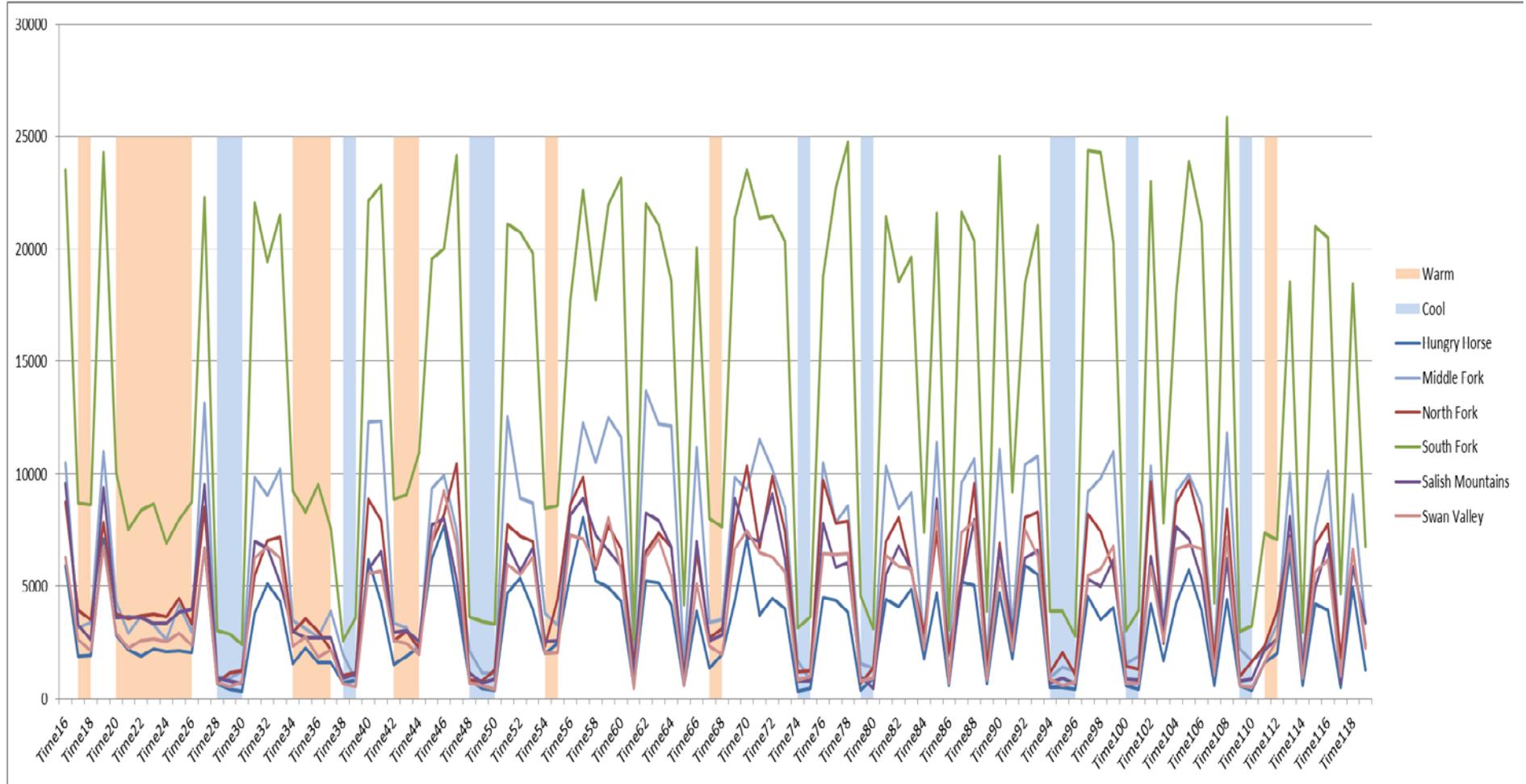


Fire by GA - ACRES

Light Severity Fire

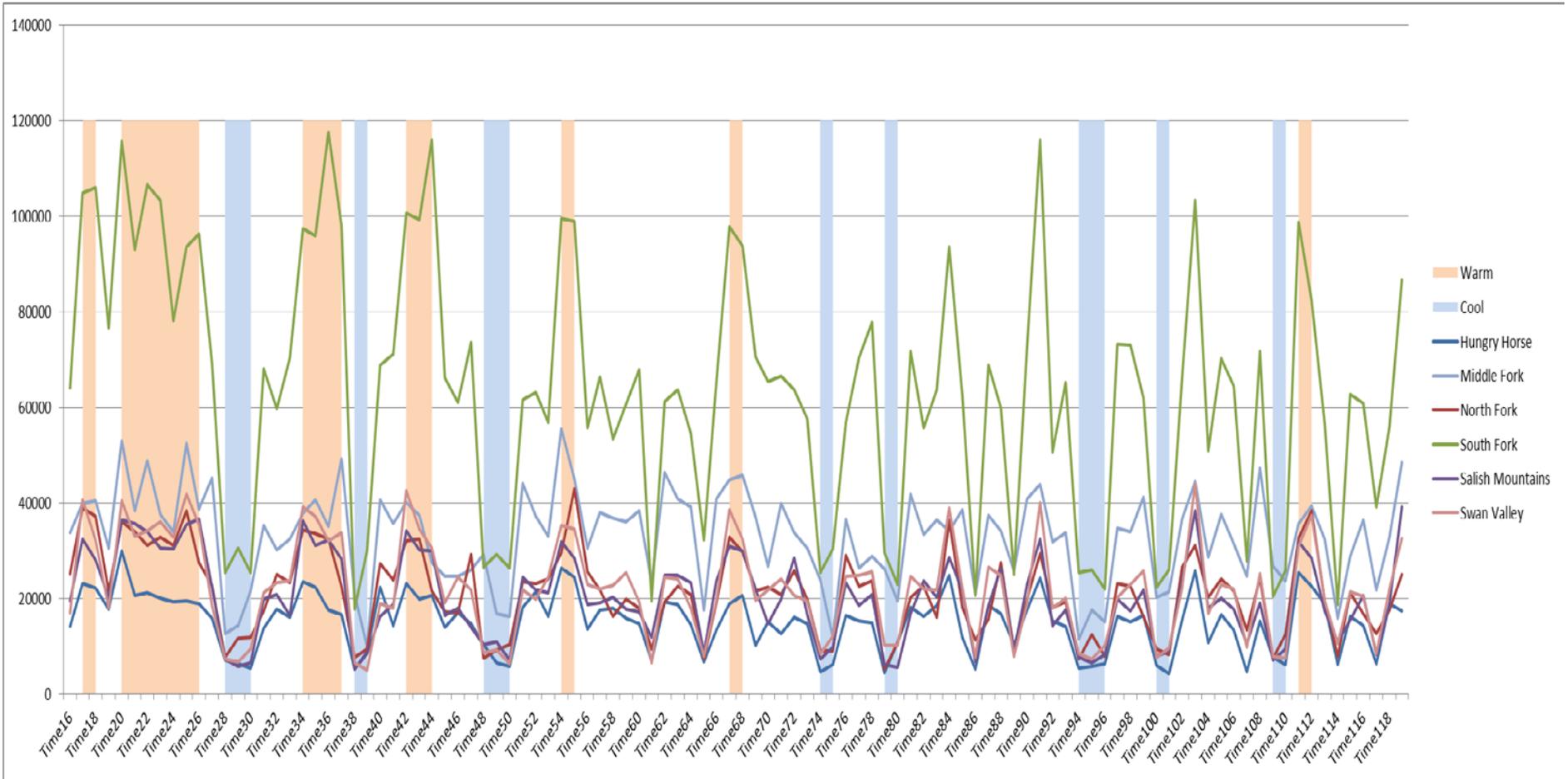


Mixed Severity Fire



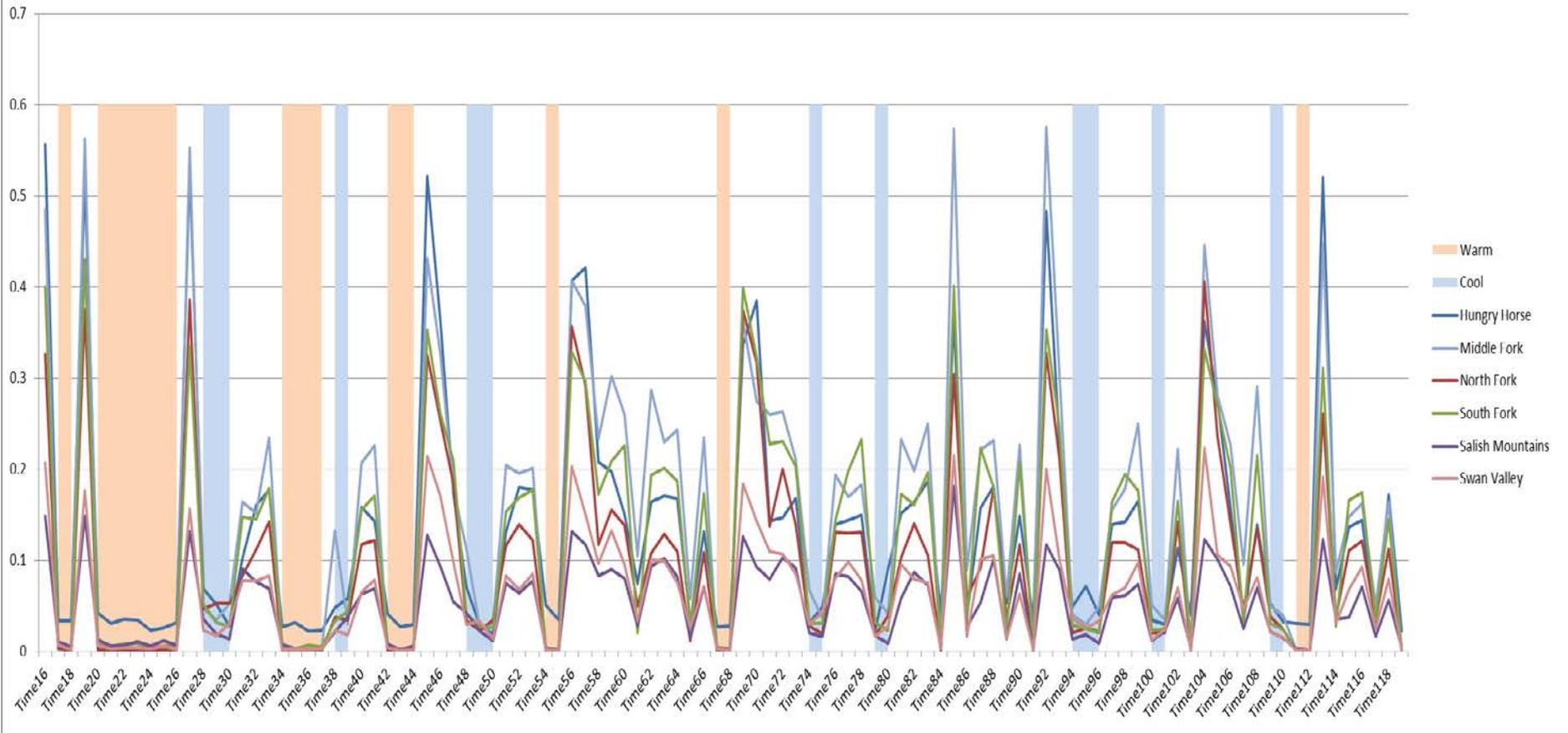
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Stand-Replacing Fire



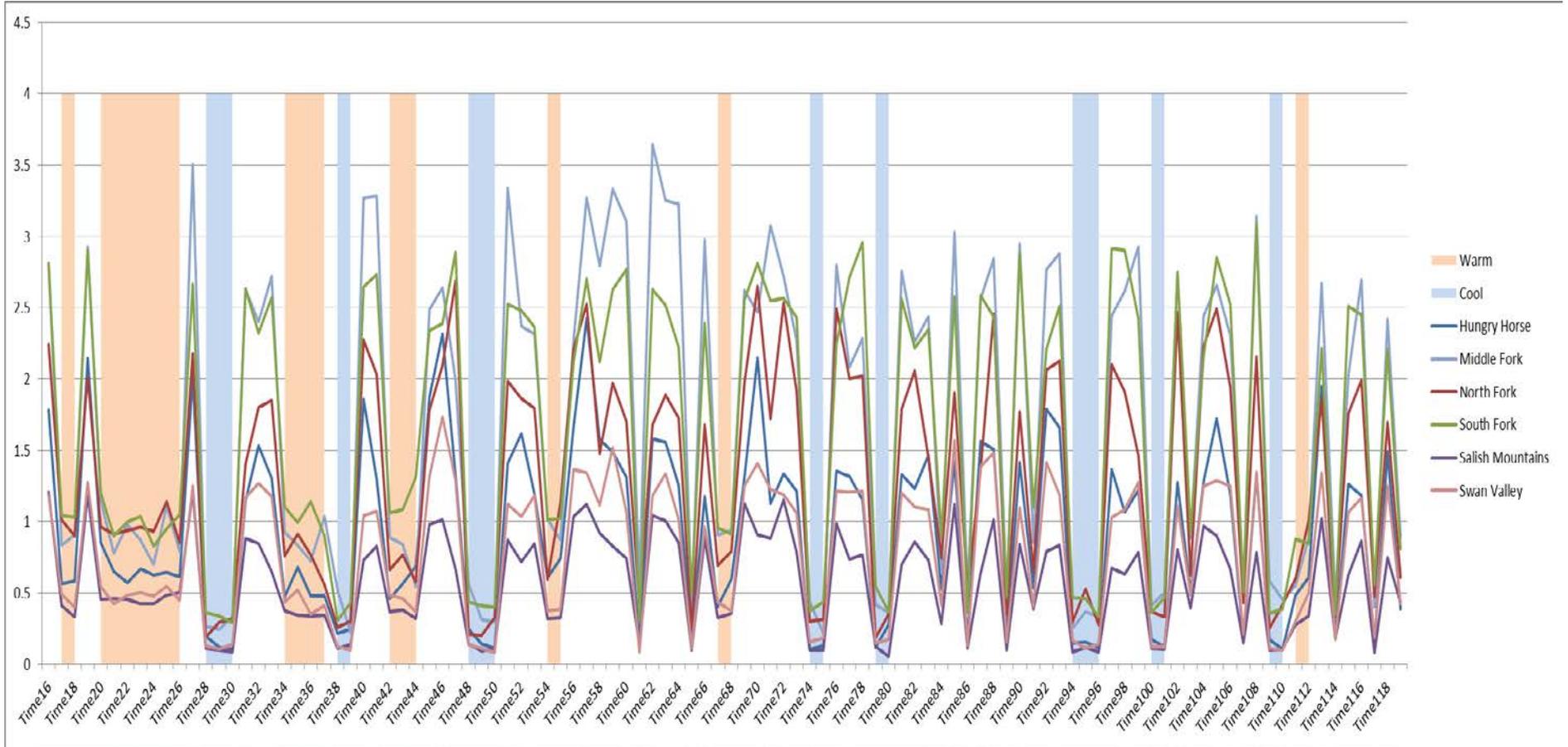
Fire by GA - PERCENT

Light Severity Fire – Percent of GA burned for each time step



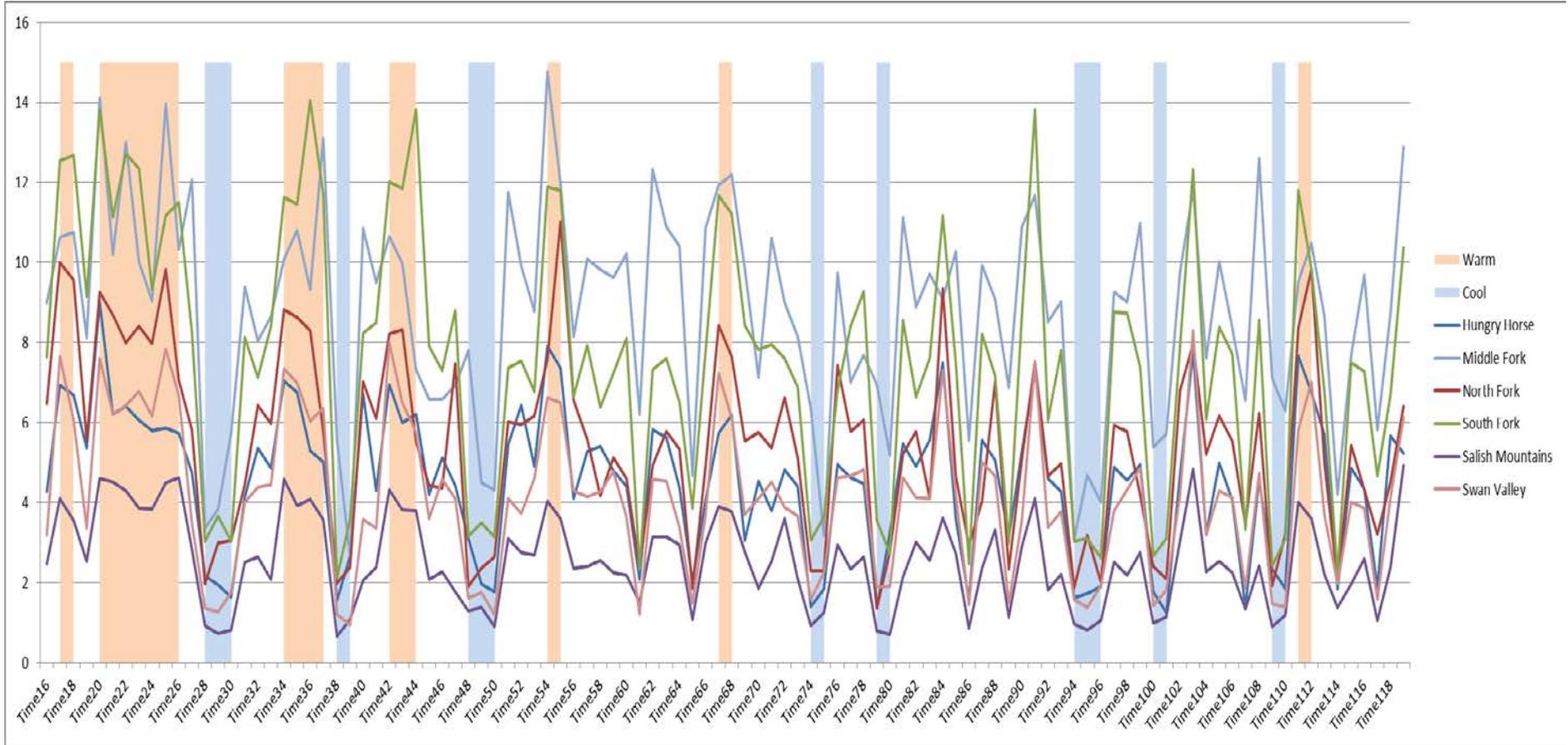
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Mixed Severity Fire– Percent of GA burned for each time step



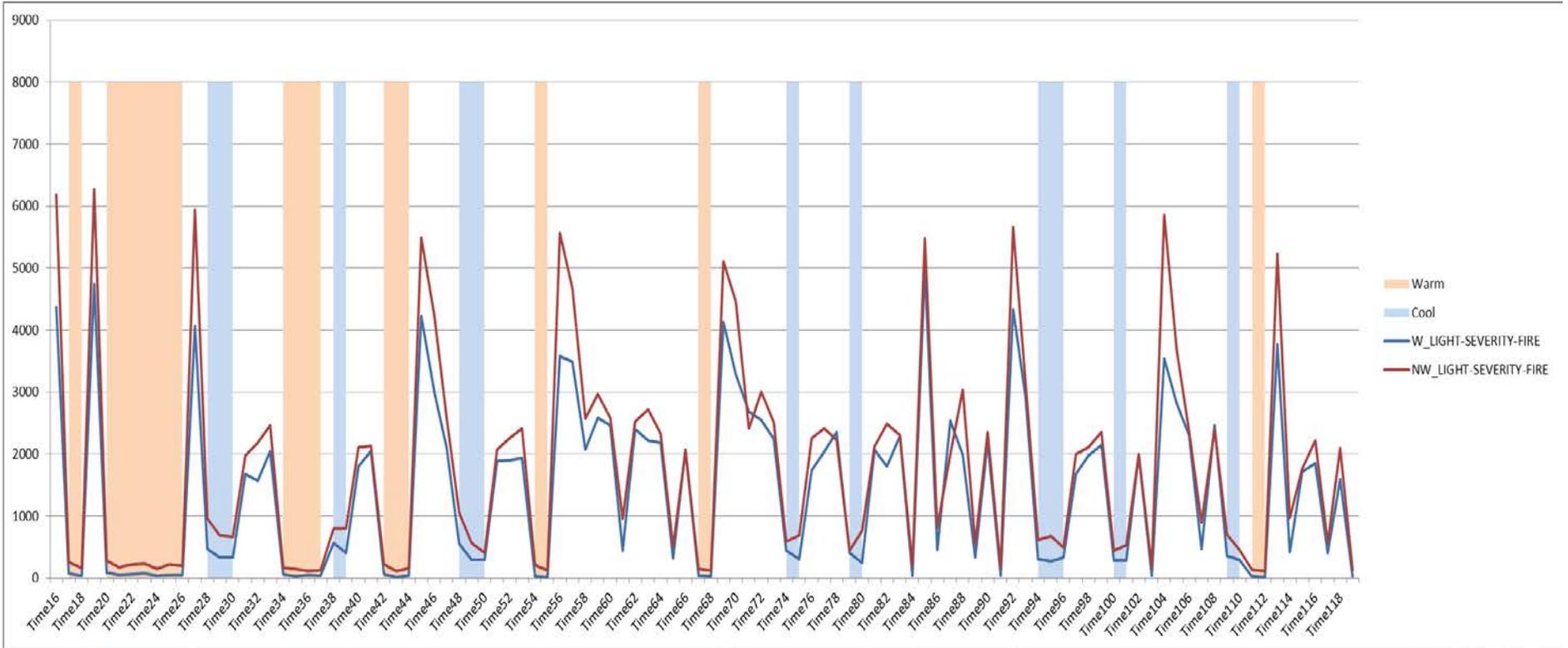
Flathead National Forest Revised Forest Plan and Final EIS

Stand-Replacing Fire– Percent of GA burned for each time step



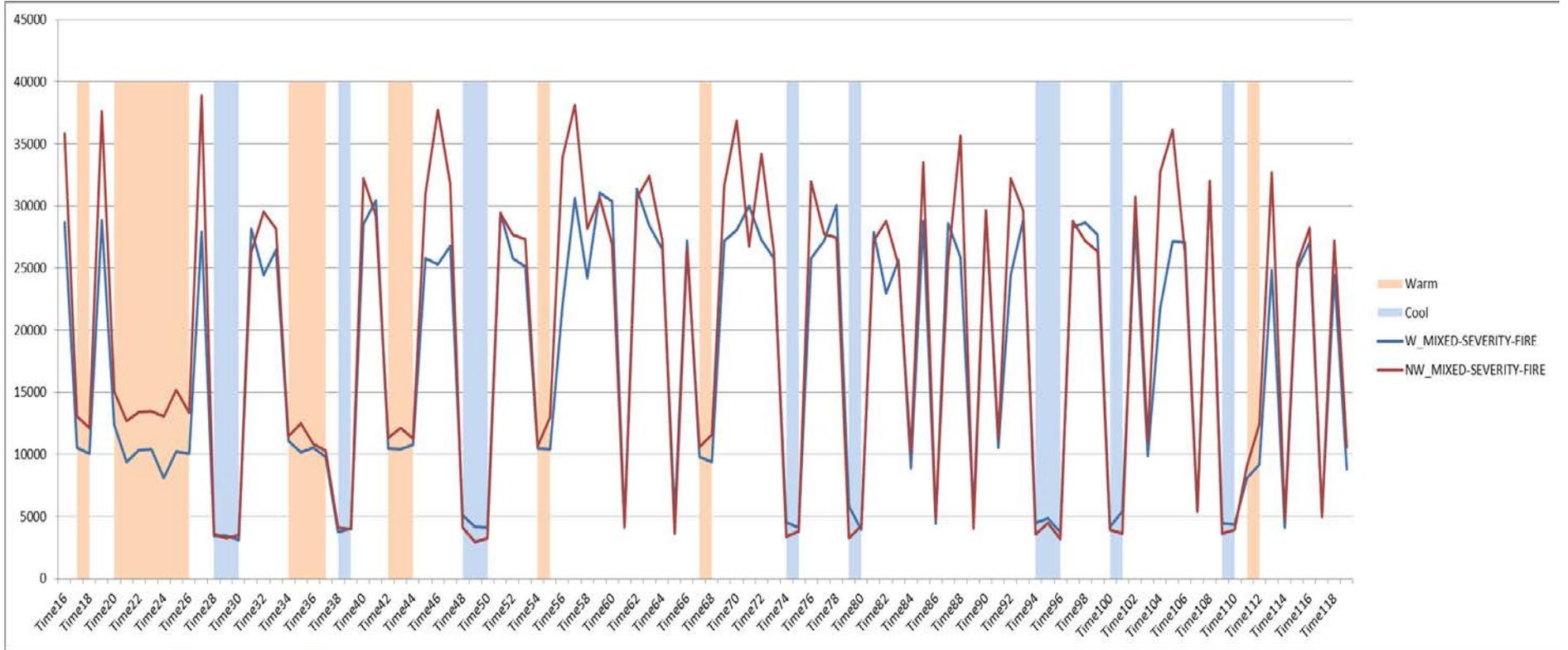
Fire in Wilderness and Non-Wilderness FS Lands

Light Severity Fire



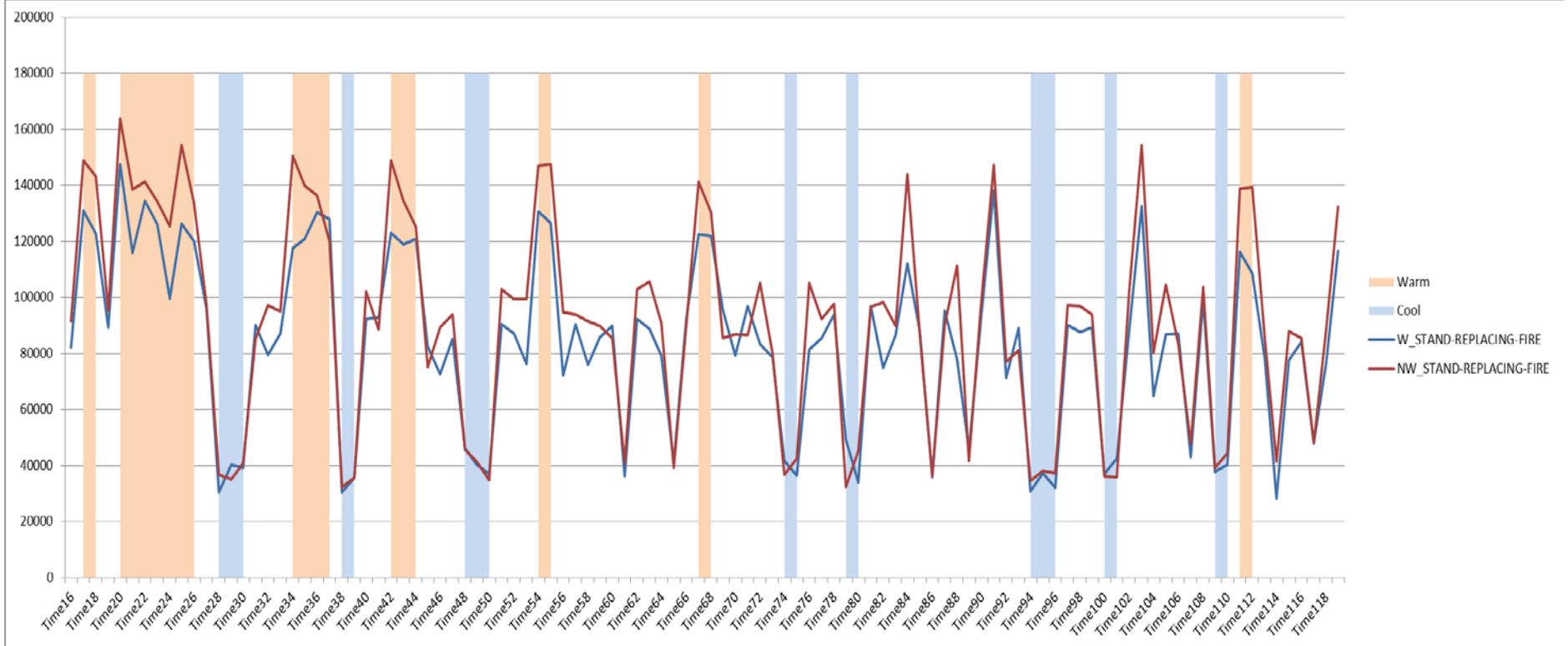
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Mixed Severity Fire

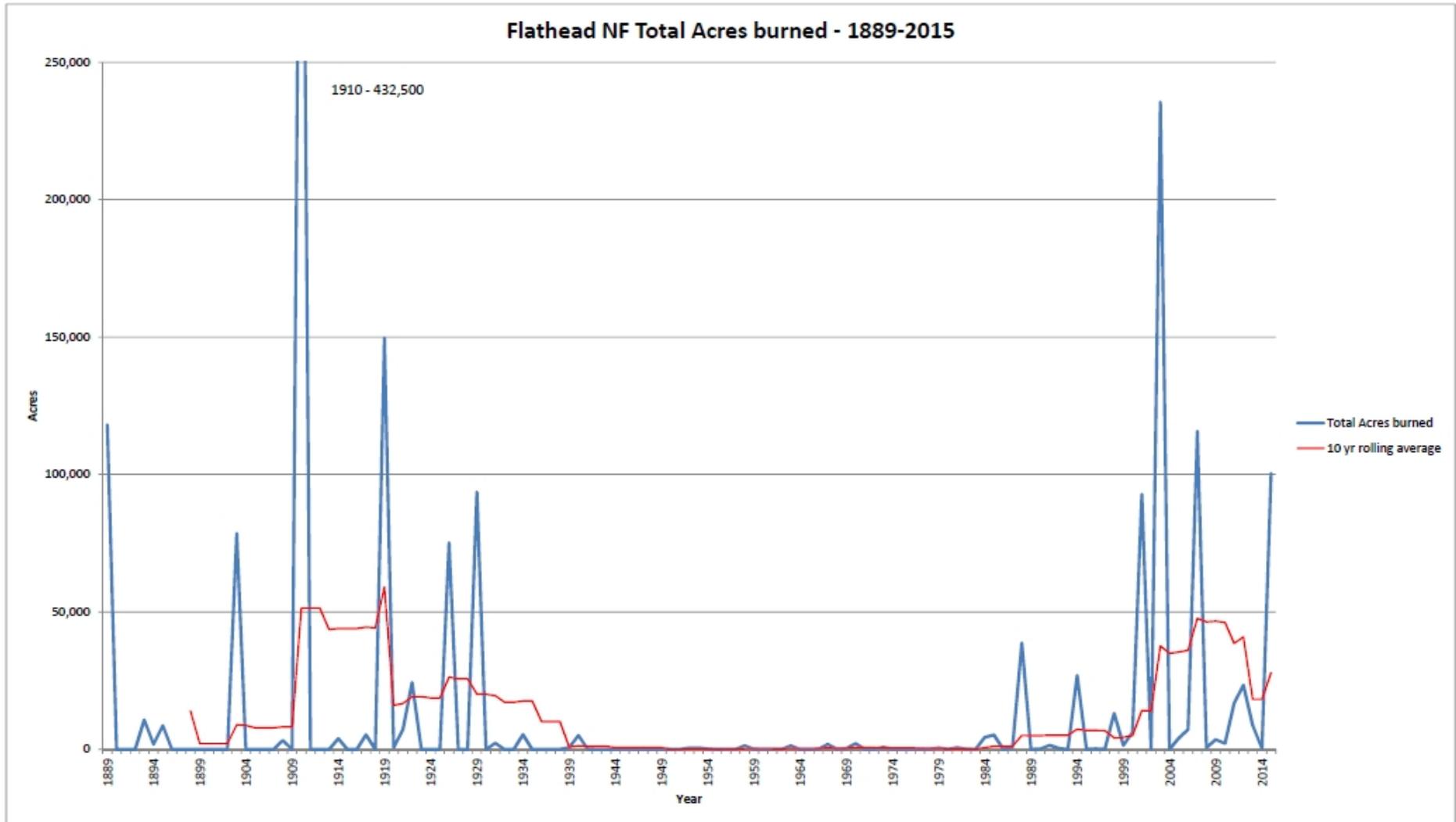


Flathead National Forest Revised Forest Plan and Final EIS

Stand-Replacing Fire

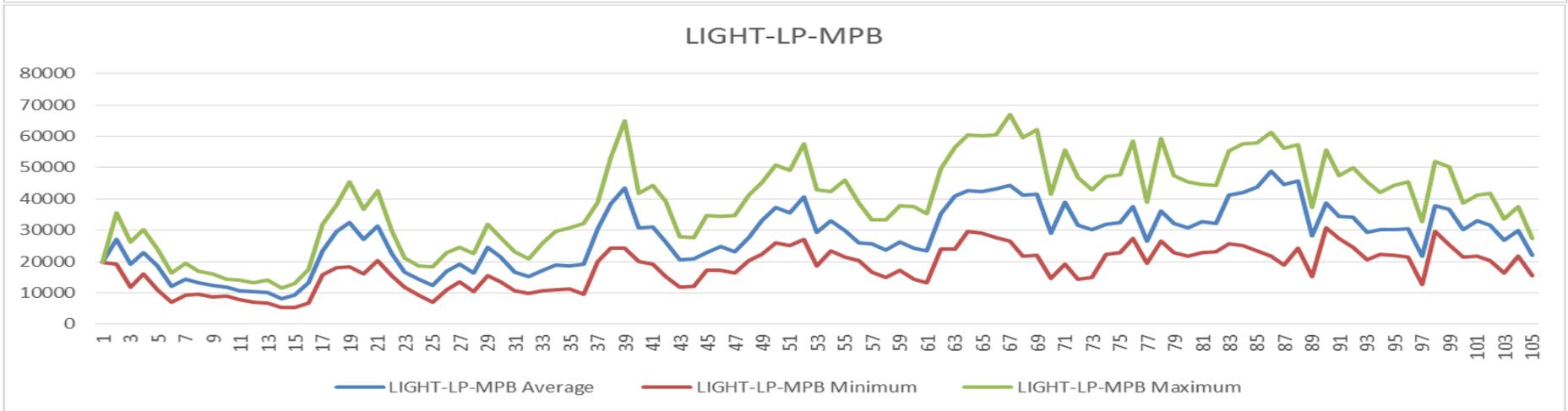
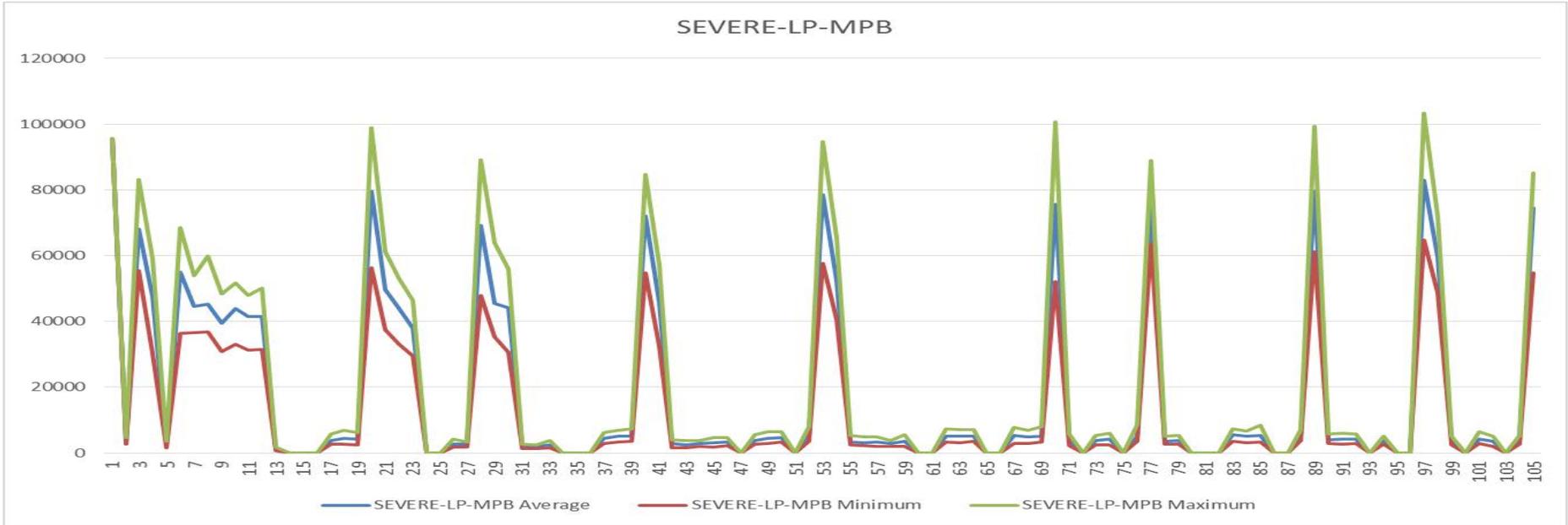


Total Acres burned since 1988

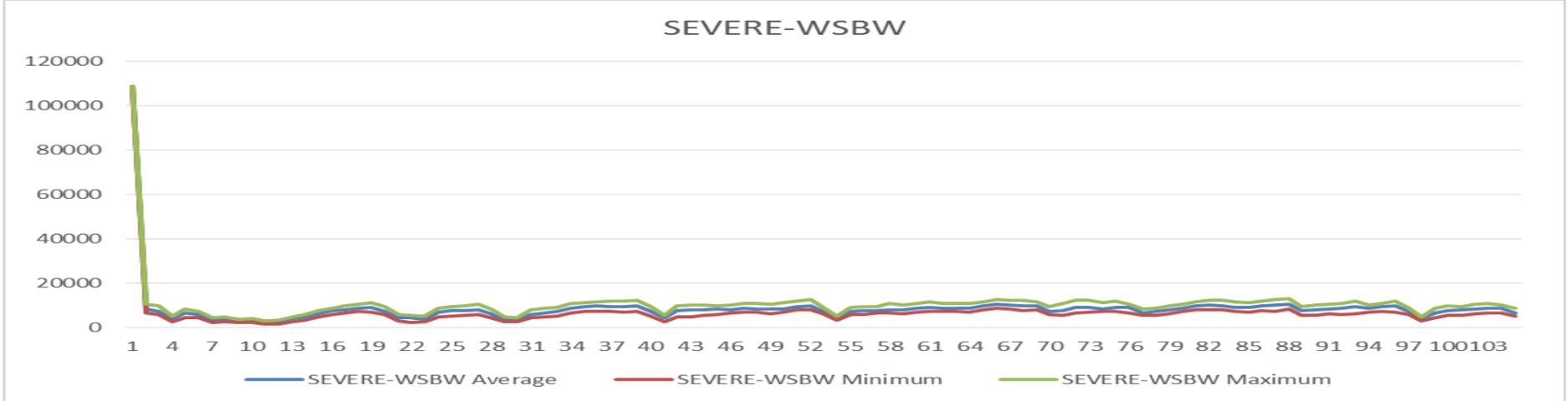


INSECT and DISEASE DISTURBANCE – acres on FNF lands

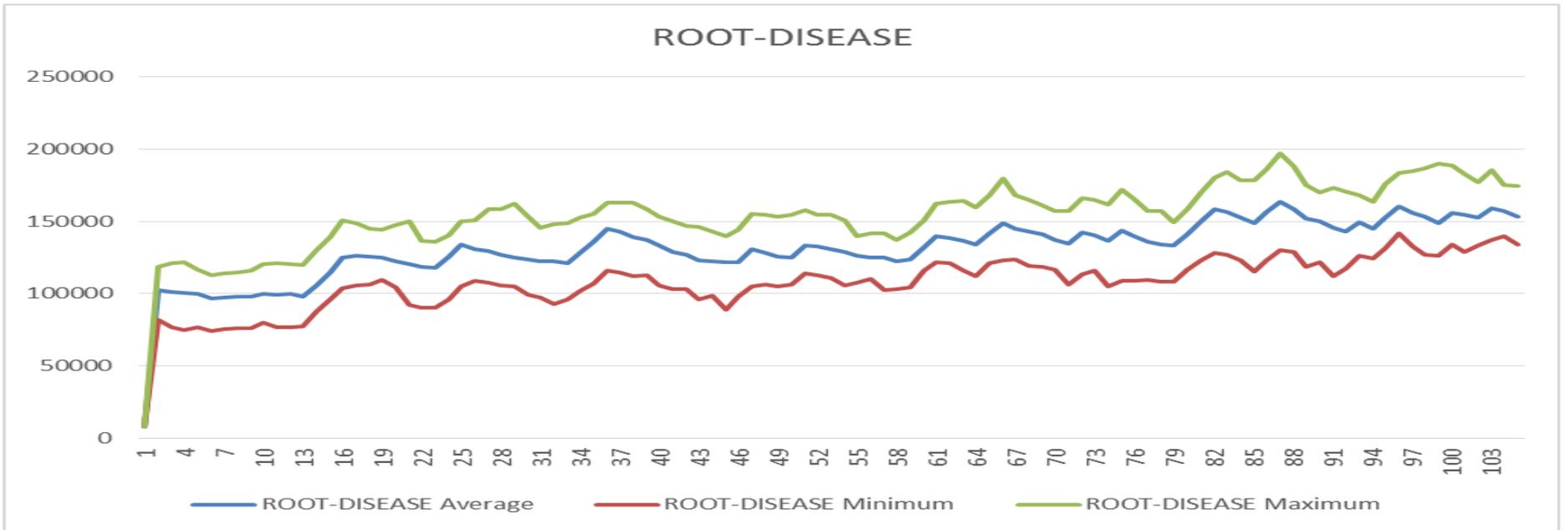
Mountain Pine Beetle



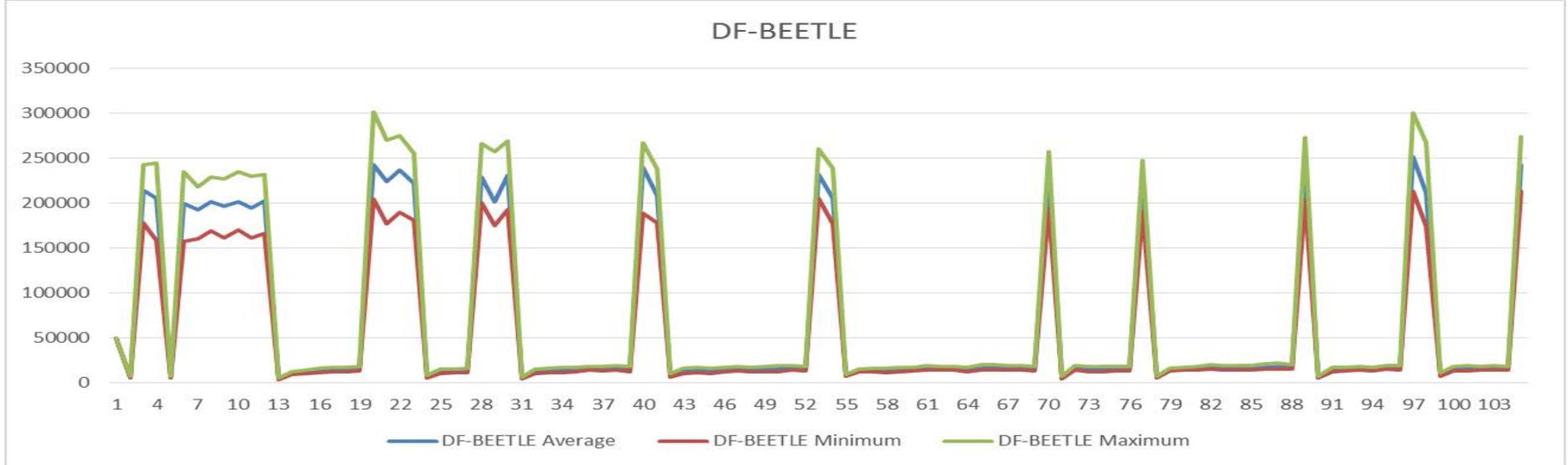
Western Spruce Budworm



Root disease



Douglas-fir beetle



Spruce beetle

