**Appendix C5 – Alterations to Other FIA Protocols for LEMP Project**

**II. Vegetation Measurements and Sampling** (trees, seedlings, tree crowns, shrubs and vines, herbs, downed woody material, leaf tissue, tree cores, lichens)

**Overview:**

Each LEM plot record contains a detailed narrative of the previous land use known for the site. Vegetation data is collected during July or August. Listed below are the data collection protocols for each ecosystem component (for example, tree crowns), beginning with the primary source of the FIA protocols. FIA protocol sections to be used, as well as sections not used (excluded), are noted.

**A) Trees –** Volume 1: Field Data Collection Procedures for Phase 2 Plots

Section 5.0: excluding the 10th paragraph on measurement of cut trees.

Sections 5.1-5.6

Section 5.7: excluding Value # 3 – Removed (tree cut)

Section 5.7.1-5.7.3

Section 5.8

Section 5.9: adding “DBH is measured from ground on uphill side of tree”; excluding the second paragraph, which describes the method of marking trees.

Section 5.9.1

Section 5.9.2

Section 5.9.3-5.9.4: exclude

Section 5.10 and 5.11

Section 5.12-5.16: exclude

Section 5.17

Section 5.18 and 5.19: Is this important to find? (uncompacted and compacted crown ratios)

Sections 5.20 through 5.20.6: exclude

Section 5.21-5.23

Section 5.24, 5.25.1, 5.25.2, 5.26.1, and 5.26.2: exclude

Section 5.25

Section 5.26.1 through 5.26.4: exclude

**B) Seedlings**-Volume 1: Field Data Collection Procedures for Phase 2 Plots

Sections 6.0 through 6.4

**C) Tree Crowns**-Phase 3 Field Guide

Follow all protocols in the FIA Phase 3 Field Guide, Version 4.0, October 2007, Section 12. Training and quality control checks are done by people certified in these tree crown measurements.

**D) Vegetation Diversity and Structure -** Phase 3 Field Guide

Shrub, vine, and herb data will be collected using protocols based on the Phase 3 Field Guide, Version 4.0, October 2007, Section 13, as modified for the LEMP (see **Appendix C4**).

**F) Down Woody Material (DWM) -** Phase 3 Field Guide

Down Woody Material data will be sampled using the protocols in the Forest Inventory and Analysis (FIA) National Core Field Guide Volume I: Field Data Collection Procedures for Phase 2 Plots, Version 4.0 October 2007.

Section 14.0

Section 14.1

Sections 14.2-14.4: except 14.4.2 and 14.4.3.9 CWD History, because harvesting will not be a factor

Section 14.5: exclude

Section 14.6

Section 14.7: exclude

Section 14.8: exclude because related to harvest residue

**G) Leaf Tissue (Foliar) Analysis *–*** Phase 3 Field

Contact Scott Bailey and/or Rich Hallett for sample collection and analysis protocols and information on where analysis will be accomplished. **This protocol was not incorporated into the 2008-2011 monitoring.**

**H) Tree Core Analysis -** Phase 3 Field

Ring count and increment measurements. Core dominant and co-dominant trees when plot established and each time soil pits are dug. After initial coring, the core need not be taken deeper than approximately 30 rings. This should be enough to match up with previous coring if all cores are archived. **This protocol was not incorporated into the 2008-2011 monitoring.**

**I. Lichens -** Phase 3 Field Guide

*FYI - Lichen identification in at least 2008 and 2009 is being done by a Green Mountain College student with a long-standing interest in lichens. Her work will be done as part of an independent study project.*

The protocols from the Phase 3 Field Guide--Lichen Communities, Version 4.0 October, 2007 will be used for the lichen inventory. Inventory of lichen species will be taken from each of the established LEM plots.

Section 10.1.1: use protocols as is.

Section 10.1.2: Mary Beth Dewey will identify the lichen specimens rather than mailing samples in to a specialist. Lichen specialists may be contacted for consultation.

Section 10.1.3.1: use as is.

Section 10.1.3.2: reference texts include: 1) Brodo, Irwin. 2001. Lichens of North America. New Haven: Yale University Press. 2) Walewski, Joe. Lichens of the North Woods. and 3) Nash, Thomas H. Lichen Biology.

Section 10.1.4:

* A broader range of lichen substrates is included in the inventory. By including lichen species growing (for example) on living trees and recently fallen branches, we will have a better chance of recording additional lichen species that may provide information on air quality and biodiversity.

Section 10.1.5: use as is.

Section 10.1.6: *exclude for 2008/2009 because Mary Beth will be doing the sampling*

Section 10.2: use as is.

Section 10.3: excluding information on using a PDR because this device will not be used

Section 10.4.1: use as is.

Section 10.4.2: exclude because we will not be mailing samples.

\*Note: lichens will be collected in the 58.9 foot radius annular plots, not the lichen plot. This is to separate soil sampling areas from lichen sampling areas.