

Changes in the Phase 3 Indicator Field Guide Chapters from version 2.0 to version 3.0

Changes documented in change proposals are indicated in **bold** type. The corresponding proposal name can be seen using the comments feature in the electronic file.

Ozone Bioindicator Plants (East)

- **Modified: 9.1.7 Communications.** Changed the phone number for the Regional Advisor for the North Central States and added another Regional Advisor for the South.
- **Clarified: 9.2.4 SPLIT PLOTS.** Clarified the discussion of split plots. Also replaced the split plot drawing with a revised drawing.
- **Clarified: 9.2.8 COLLECTION OF LEAF SAMPLES AND VOUCHER DATA.** Clarified this section by adding a few words to the text.
- **Changed: 9.4.4 PLOT NUMBER.** Changed this variable name to OZONE PLOT NUMBER to match the variable name already in the IM system.
- **Clarified: 9.4.7 OZONE SAMPLE KIND.** Clarified the descriptive text to match what is communicated at training.
- **Clarified: 9.4.9 OZONE GRID DENSITY.** Clarified the descriptive text.
- **Clarified: 9.5.1 GPS Unit Settings, Datum, and COORDINATE SYSTEM.** Clarified the national standard for reporting purposes by adding “(NAD 83)”.
- **Added: 9.5.5 GPS DATUM.** Added this new variable and renumbered variables following.
- **Deleted: Old 9.5.5 LATITUDE.** The variable LATITUDE was deleted and this renumbered section (9.5.6) was modified to be a general introduction to three new variables that take the place of the old LATITUDE variable: LATITUDE DEGREES, LATITUDE MINUTES, and LATITUDE SECONDS.
- **Added: 9.5.6.1 LATITUDE DEGREES.** Added this new variable.
- **Added: 9.5.6.2 LATITUDE MINUTES.** Added this new variable.
- **Added: 9.5.6.3 LATITUDE SECONDS.** Added this new variable.
- **Deleted: Old 9.5.6 LONGITUDE.** The variable LONGITUDE was deleted and this renumbered section (9.5.7) was modified to be a general introduction to three new variables that take the place of the old LONGITUDE variable: LONGITUDE DEGREES, LONGITUDE MINUTES, and LONGITUDE SECONDS.

- **Added: 9.5.7.1 LONGITUDE DEGREES. Added this new variable.**
- **Added: 9.5.7.2 LONGITUDE MINUTES. Added this new variable.**
- **Added: 9.5.7.3 LONGITUDE SECONDS. Added this new variable.**
- Clarified: Appendix 9.B and Appendix 9.C DATA SHEETS. Clarified and revised the data sheets for ease of the field crews.

Ozone Bioindicator Plants (West)

- Modified: 9.1.7 Communications. The Regional Coordinator for the Interior West was changed from Roger Boyer to Bill Dunning. Also added another Regional Advisor for the South.
- Clarified: 9.2.2 SITE SELECTION PROCEDURES. Clarified the discussion of split plots.
- Clarified: 9.2.7 COLLECTION OF LEAF SAMPLES AND VOUCHER DATA. Clarified this section by adding a few words to the text.
- Changed: 9.4.4 PLOT NUMBER. Changed this variable name to OZONE PLOT NUMBER to match the variable name already in the IM system.
- Clarified: 9.4.7 OZONE SAMPLE KIND. Clarified the descriptive text to match what is communicated at training.
- Clarified: 9.4.9 OZONE GRID DENSITY. Clarified the descriptive text.
- Clarified: 9.5.1 GPS Unit Settings, Datum, and COORDINATE SYSTEM. Clarified the national standard for reporting purposes by adding “(NAD 83)”.
- **Deleted: Old 9.5.5 LATITUDE. The variable LATITUDE was deleted and this renumbered section (9.5.6) was modified to be a general introduction to three new variables that take the place of the old LATITUDE variable: LATITUDE DEGREES, LATITUDE MINUTES, and LATITUDE SECONDS.**
- **Added: 9.5.6.1 LATITUDE DEGREES. Added this new variable.**
- **Added: 9.5.6.2 LATITUDE MINUTES. Added this new variable.**
- **Added: 9.5.6.3 LATITUDE SECONDS. Added this new variable.**
- **Deleted: Old 9.5.6 LONGITUDE. The variable LONGITUDE was deleted and this renumbered section (9.5.7) was modified to be a general introduction to three new**

variables that take the place of the old LONGITUDE variable: LONGITUDE DEGREES, LONGITUDE MINUTES, and LONGITUDE SECONDS.

- **Added: 9.5.7.1 LONGITUDE DEGREES.** Added this new variable.
- **Added: 9.5.7.2 LONGITUDE MINUTES.** Added this new variable.
- **Added: 9.5.7.3 LONGITUDE SECONDS.** Added this new variable.
- **Clarified: Appendix 9.B DATA SHEETS.** Clarified and revised the data sheets for ease of the field crews.

Lichen Communities

- **Corrected: 10.1.4 Procedure.** Corrected the area of a lichen plot as listed in the field guide from “The area of the lichen plot is $40715 \text{ ft}^2 = 3782 \text{ m}^2 = 0.378 \text{ ha} = 0.935 \text{ acres}$.” to “The area of the lichen plot is $40830 \text{ ft}^2 \approx 3793 \text{ m}^2 \approx 0.379 \text{ ha} \approx 0.937 \text{ acres}$.”
- **Modified: Figure 10-2.** Changed “Annular plot” to “Macroplot” in the figure.
- **Added: 10.1.4 Procedure.** Added a note that this indicator is CORE OPTIONAL on all phase 2 plots.
- **Modified: 10.3.16 % COVER LICHEN PLOT CONIFERS.** Modified *Field width* from “3 digits” to “2 digits”; added “(2 classes)” to *Tolerance*; modified *MQO* from “At least 99% of the time” to “At least 90% of the time”; *Values* from “1-100” to a table representing 5% classes. Also added text to the Note under the *Values* table indicating that code 99 indicates 96% to 100% rather than indicating the upper limit of the 5 percent class.
- **Modified: 10.3.17 % COVER LICHEN PLOT HARDWOODS.** Modified *Field width* from “3 digits” to “2 digits”; added “(2 classes)” to *Tolerance*; modified *MQO* from “At least 99% of the time” to “At least 90% of the time”; *Values* from “1-100” to a table representing 5% classes. Also added text to the Note under the *Values* table indicating that code 99 indicates 96% to 100% rather than indicating the upper limit of the 5 percent class.
- **Modified: 10.3.18 % COVER LICHEN PLOT TALL SHRUBS.** Modified *Field width* from “3 digits” to “2 digits”; added “(2 classes)” to *Tolerance*; modified *MQO* from “At least 99% of the time” to “At least 90% of the time”; *Values* from “1-100” to a table representing 5% classes. Also added text to the Note under the *Values* table indicating that code 99 indicates 96% to 100% rather than indicating the upper limit of the 5 percent class.

Soil Measurements and Sampling

- **Added: 11.1 SUMMARY OF METHOD. Added a note that this indicator is CORE OPTIONAL on all phase 2 plots.**
- Clarified: 11.5 QUALITY ASSURANCE (QA). The text was clarified by changing measurement quality objectives to tolerances.
- Modified: 11.7.1 Forest Floor. Modified a metric measurement to an English system measurement.
- Modified: Figure 11-2. The metric measurements were modified to English measurements.
- Moved: 11.7.2 Mineral Soil and 11.7.3 Assembly and Operation of Impact Driven Soil Corer (Bulk Density Sampler). The order of these two sections was reversed. The new sections are: 11.7.2 Assembly and Operation of Impact Driven Soil Corer (Bulk Density Sampler) and 11.7.3 Mineral Soil.
- Clarified: 11.7.6 Commonly Encountered Problems. Some additional text was added to 1. Rocky Soils.
- Clarified: 11.7.20 DEPTH TO RESTRICTIVE HORIZON. A decimal point was added to the value '999' so that the value is now '99.9' to be consistent with the PDR.
- Clarified: 11.7.21 SOIL TEXTURE IN THE 0-4 INCH LAYER. Text explaining how to tell the difference between the bottom of the forest floor and the top of an organic-rich mineral horizon was moved from this section to section 11.7.1 and section 11.7.12.
- Added: 11.7.21 SOIL TEXTURE IN THE 0-4 INCH LAYER. A code "9 Not measured – make a plot note" was added to the field guide text to make the text consistent with the existing Tally program.
- Added: 11.7.22 SOIL TEXTURE IN THE 4-8 INCH LAYER. A code "9 Not measured – make a plot note" was added to the field guide text to make the text consistent with the existing Tally program.
- Modified: Figure 11-5. Don Nagel was removed as the contact for the laboratory in Grand Rapids, MN (address will be listed without a contact name); the address was corrected for the Soil Characterization Laboratory, and the instructions at the bottom of the form were modified to be consistent with the main section text.
- Added: 11.12 Acknowledgements. Added the East Indicator Advisor contact information for Charles H. (Hobie) Perry.
- Modified: 11.13 EXAMPLE DATA SHEETS. On Soil Data Sheet 1, the metric units were changed to English units.

Crowns: Measurements and Sampling

- **Added: 12.1 OVERVIEW.** Added a note that this indicator is **CORE OPTIONAL** on all phase 2 plots.
- **Modified: 12.4 CROWN RATING PRECAUTIONS.** Modified the text of “Leaning trees”.
- **Modified: 12.5 UNCOMPACTED LIVE CROWN RATIO.** Modified “height” to “length” in the text.
- **Modified: 12.5 UNCOMPACTED LIVE CROWN RATIO.** Modified *Values* from 5% classes to “00 to 99 percent”. **UNCOMPACTED LIVE CROWN RATIO** now recorded to the nearest 1%.
- **Deleted: 12.5 UNCOMPACTED LIVE CROWN RATIO.** Deleted two additional lines of text for consistency with the change to 1% classes.
- **Modified: 12.6 CROWN LIGHT EXPOSURE.** Modified text to remove reference to leaning trees.
- **Modified: Figure 12-5**
- **Modified: Figure 12-11**

Vegetation Diversity and Structure

- **Added: 13.0 INTRODUCTION.** Added a note that this indicator is **CORE OPTIONAL** on all phase 2 plots.
- **Clarified: 13.1 SAMPLE DESIGN.** Added and rearranged some text for clarity.
- **Clarified: 13.3.3 PLOT NUMBER.** Added text to clarify use of code 99999.
- **Deleted: 13.3.4 P3 HEXAGON NUMBER.** Deleted this variable. The information is available in a cross-walk for office use.
- **Deleted: 13.3.5 P3 PLOT NUMBER.** Deleted this variable. The information is available in a cross-walk for office use.
- **Changed: New 13.3.5 CREW TYPE.** Changed variable name to “**VEG CREW TYPE.**”
- **Changed: New 13.3.6 SAMPLE KIND.** Changed variable name to “**VEG SAMPLE KIND.**” Also, added “**P3 VEG**” to code definitions.

- **Changed: New 13.3.7.1 YEAR.** Changed *Values* from “ ≥ 2004 ” to “ ≥ 2005 ”.
- **Changed: New 13.3.9 PLOT NOTES.** Changed variable name to “VEG PLOT NOTES.” Also, Changed *Field width* from “Unlimited alphanumeric characters” to “160 alphanumeric characters.”
- **Changed: 13.4.1 SUBPLOT NUMBER.** Changed *When collected* from “On all plots...” to “Every subplot on all plots...”.
- **Changed: 13.4.2. SUBPLOT STATUS.** Changed variable name to “VEG SUBPLOT STATUS.”
- **Changed: 13.4.3 SUBPLOT NONSAMPLED REASON.** Changed variable to “VEG SUBPLOT NONSAMPLED REASON.”
- **Added: 13.4.6 OPTIONAL COMMUNITY DESCRIPTION FOR SPECIMEN LABELS (CORE OPTIONAL).** Added this variable.
- **Added: 13.4.7 VEG SUBPLOT NOTES.** Added this variable.
- **Changed: 13.7.3 QUADRAT CONDITION CLASS.** Changed variable name to “QUADRAT CONDITION CLASS NUMBER.” Also, added text to *When collected*.
- **Clarified: 13.7.4 QUADRAT STATUS.** Added text to *When collected*.
- **Added: 13.7.6 VEG QUADRAT NOTES.** Added this variable.
- **Clarified: 13.8. QUADRAT SPECIES RECORDS.** Changed to heading name to “SPECIES RECORDS” and added text to clarify this section.
- **Added: 13.8.1 Plot Species List.** Added this section header as part of the chapter rearrangement. Also renumbered the sections following this one.
- **Changed: 13.8.1.1 QUADRAT SPECIES.** Changed the name to SPECIES CODE, clarified the descriptive text, *When collected*, and the *Values*. Also deleted the “Key to Assigning Species Codes, When to Collect:”
- **Added: 13.8.1.2 UNIQUE SPECIES NUMBER.** Added this variable.
- **Added: 13 8.1.3 SPECIMEN OFFICIALLY COLLECTED.** Added this variable.
- **Added: 13.8.1.4 SPECIMEN LABEL NUMBER.** Added this variable.

- **Added: 13.8.1.5 SPECIMEN NOT COLLECTED REASON CODE.** Added this variable.
- **Added: 13.8.1.6 PLOT SPECIES NOTES.** Added this variable. Name changed from “QUADRAT” to “PLOT” in second change proposal.
- **Added: 13.8.2 QUADRAT SPECIES DATA COLLECTION.** Added this section as part of a chapter rearrangement.
- **Added: 13.8.2.1 SPECIES PRESENCE/ABSENCE ON QUADRAT.** Added this variable.
- **Added: 13.8.3 SUBPLOT SPECIES DATA COLLECTION.** Added this section as part of a chapter rearrangement.
- **Deleted: Old 13.9.1 SUBPLOT NUMBER.** Deleted this code and renumbered rest of new sections.
- **Added: Old 13.9.3 (New 13.8.3.1) SUPPLOT SPECIES TOTAL PERCENT CANOPY COVER.** Added a possible *Value* of “t”, defined as trace (less than 1%). Also clarified *When collected* from “Each subplot species recorded” to “Each unique species present on current subplot with SUBPLOT STATUS = 1”.
- **Added: Old 13.9.4 (New 13.8.3.2) SUPPLOT SPECIES CANOPY COVER LAYER 1 AND 2.** Added a possible *Value* of “t”, defined as trace (less than 1%). Also clarified *When collected* from “Each subplot species recorded” to “Each unique species present on current subplot with SUBPLOT STATUS = 1”.
- **Added: Old 13.9.5 (New 13.8.3.3) SUPPLOT SPECIES CANOPY COVER LAYER 3.** Added a possible *Value* of “t”, defined as trace (less than 1%). Also clarified *When collected* from “Each subplot species recorded” to “Each unique species present on current subplot with SUBPLOT STATUS = 1”.
- **Added: Old 13.9.6 (New 13.8.3.4) SUPPLOT SPECIES CANOPY COVER LAYER 4.** Added a possible *Value* of “t”, defined as trace (less than 1%). Also clarified *When collected* from “Each subplot species recorded” to “Each unique species present on current subplot with SUBPLOT STATUS = 1”.
- **Deleted: A variable SUBPLOT SPECIES NOTES** was added in the first change proposal and dropped in the second change proposal.
- **Clarified: 13.10 UNKNOWN PLANTS AND VOUCHER SPECIMEN COLLECTION.** Clarified the steps for processing an unknown plant, and changed “PLANTS” to “SPECIES” in the variable name. Clarified Figure 13-2 Example of field label for unknown specimen. Added Figure 13-3 Example of Official Specimen label for unknown specimen.

- **Clarified: 13.10.2 Unknown spreadsheet.** Clarified the name to “Unknown Report” and clarified the information in Table 13.1. Also, clarified Figure 13-2 ‘Example of field label for unknown specimen’, and added Figure 13-3 ‘Example of official specimen label for unknown specimen’.
- **Added: 13.13. CODES FOR UNKNOWN PLANTS.** Added a new table of codes. Also added new data sheets.

Down Woody Materials

- **Added: 14.0 INTRODUCTION.** Added a note that this indicator is **CORE OPTIONAL** on all phase 2 plots.
- **Clarified: 14.4.1 Tally Rules for Coarse Woody Debris (CWD).** Clarified the third rule by adding some text.
- **Modified: Figure 14-6.** Corrected the location of the **LARGE-END DIAMETER** and the corresponding label.
- **Clarified: 14.8.11 PILE DENSITY.** Added a line of text to the variable description.
- **Modified: Fuels Assessment Data Form.** In the microplot fuel loading table, the third subplot listed was corrected from “2” to “3”.