



Mexico Forest Protocol Version 3.0 ERRATA AND CLARIFICATIONS

The Climate Action Reserve (Reserve) published its Mexico Forest Protocol Version 3.0 (MFP V3.0) in October 2022. While the Reserve intends for the MFP 3.0 to be a complete, transparent document, it recognizes that correction of errors and clarifications will be necessary as the protocol is implemented and issues are identified. This document is an official record of all errata and clarifications applicable to the MFP 3.0.¹

Per the Reserve Offset Program Manual, both errata and clarifications are considered effective on the date they are first posted on the Reserve website. The effective date of each erratum or clarification is clearly designated below. All listed and registered forest projects must incorporate and adhere to these errata and clarifications when they undergo verification. The Reserve will incorporate both errata and clarifications into future versions of the protocol.

All project developers and verification bodies must refer to this document to ensure that the most current guidance is adhered to in project design and verification. Verification bodies shall refer to this document immediately prior to uploading any Verification Statement to assure all issues are properly addressed and incorporated into verification activities.

If you have any questions about the updates or clarifications in this document, please contact the Mexico team at: proyectomx@climateactionreserve.org or (213) 891-1444 x6.

¹ See Section 4.3.4 of the Reserve Offset Program Manual for an explanation of the Reserve's policies on protocol errata and clarifications. "Errata" are issued to correct typographical errors. "Clarifications" are issued to ensure consistent interpretation and application of the protocol. For document management and program implementation purposes, both errata and clarifications to the MFP are contained in this single document.

Errata and Clarifications (arranged by protocol section)

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Appendix B

1. Increment Sampling (CLARIFICATION – December 15, 2023)

Section: B.1.2.1 and B.3.2

Context: The MFP V3.0 requires radial increment sampling to estimate growth in the forest in the absence of repeated plot measurements. The historical radial increment samples are acquired initially from each plot, which are used as the basis for forward projections of diameter. Height measurements are projected forward based on calculating the proportion of diameter to height (based on initial and ongoing sampling data) and adjusting the height based on the modified (grown) diameter. The Reserve's inventory management tool, CALCBOSK, automates these calculations based on the sampled data.

Where sufficient sample plots have been remeasured, the growth programming in CALCBOSK will switch to calculating diameter and height increment based on the subsample of remeasured inventory plots. This functionality will engage within 6 to 12 years following the first reporting period, depending on how many plots have been remeasured. This method is expected to provide improved growth estimates over the initial approach, since both diameter and height will be projected based on real measurements taken over the course of each project's crediting period. Growth is verified through periodic site visit verifications.

Moreover, the MFP V3.0 establishes that where increment data cannot be acquired from the stated procedures in the inventory manual, the Reserve will work with the Forest Owner to develop an alternative solution. This is usually reserved for hardwoods where radial data cannot be acquired.

Table B.1 includes the sampling requirements for radial increment and Table B.7 details the quantification steps applied in CALCBOSK to calculate the grown inventory based on increment sampling.

Table B.1 Inventory Plots

Item	Attribute	Description
15	Previous 5 years' radial increment	<p>These data are used to estimate growth in the forest. This is required in the absence of repeated plot measurements or a viable growth model for each species.</p> <p>Enter the measurement (millimeters) of the past 5-years' radial growth (from a ring count) on a 'highly or moderately vigorous' tree (vigor codes 1 or 2) and a 'low vigor' tree (vigor code 3; if present) in the plot; select the first feasible trees (some species may not be suitable for measurement) facing north and continuing clockwise.</p>

Table B.2. Steps used in CALCBOSK for Updating Tree Records

Steps	Description	Tools/Process Required
1	Querying data for analysis.	Query live tree records that have been measured for growth increment by species class (conifer and hardwood), and vigor class in the Activity Area. (CALCBOSK assigns size classes to inventory data.)

Steps	Description	Tools/Process Required
2	Determine annual diameter increment.	<p>The previously collected data for diameter increment (see item 15 in Table B.1) represent the increment over the previous 5 years. This data must be divided by 5 to determine the average annual diameter increment.</p> <p>Note: In many cases, it is impossible to extract good increment samples from hardwoods. In such cases, the conifer increment is applied to the hardwood trees after adjusting the increment based on a comparison of average hardwood diameter to conifer diameter on a plot-by-plot basis, where tree ages are assumed to be equal.</p>
3	Calculate average annual diameter increment.	The average annual diameter increment by species class and vigor class is calculated by summing the results from Step 2 for each species class and vigor class and dividing by the number of records summed.
4	Add diameter increment to tree records.	The average diameter increment for each species class and vigor class is multiplied by the number of days between the desired report date and the date the tree record was measured in the field. This adjusts the tree's diameter either forward or backward to a previous or future estimate.
5	Calculate a diameter-to-height regression estimator.	<p>Height adjustments for each tree are based on the tree's diameter/height relationship from field measurements and applying the same relationship to trees with modified diameters from modeling.</p> <p>When the basis of modeled projections switches to an analysis of remeasured trees, whereby both the change in diameter and height can be determined, growth projections will be made by developing both diameter and height increment estimates for each species and vigor class combination.</p>
6	Calculate the estimated height for each tree based on the increment determined from Step 5.	Apply the estimated height increment developed in Step 5 for each tree record to update the tree's height. Like the diameter 'growth', the height change can occur forward or backward looking to a specific desired reporting date.

Clarification: To ensure increment sampling is conservatively applied to calculate total tCO₂e removals, the Reserve is establishing maximum radial increment rates based on ecotype, species category (conifers and hardwoods), and vigor class to be incorporated in CALCBOSK. The maximum radial increment rates will later be replaced with measured height and diameter increment following a site visit verification, following guidance described below.

The maximum radial increment rates have been developed using data from the National Forest Inventory (NFI) managed by the National Forestry Commission of Mexico

(CONAFOR),² applying the lower bound of the 95% confidence interval of the mean rate for each increment category. Increment categories have been developed for each ecotype (from the NFI), species group (conifer or hardwood), and vigor class. If the sampled radial increment for a given species and vigor class is below the maximum radial increment rates, the radial increment derived from project data will be applied. If the sampled radial increment exceeds the maximum radial increment rates, the maximum radial increment rate will be applied.

The maximum radial increment rates must be applied for the ecotype, the species categories, and the vigor classes where sampled increment data is not available or obtainable, as is typically the case for hardwood species.

For any stratum (or Activity Area if not stratified) that has more than one ecotype, the lowest (i.e., most conservative) maximum radial increment rates from the ecotypes present in the stratum (or Activity Area if not stratified) must be applied to the entire stratum (or Activity Area if not stratified).

In order to replace the maximum radial increments rates with project data, Forest Projects must remeasure previously measured trees on all available plots. An available plot is a project inventory plot that has previously measured trees; plots that have no remaining trees post-harvest or disturbance are not considered available for the purposes of adjusting project growth rates, though harvested and disturbed plots must be resampled within a year of the disturbance (see Section B.3.1). The measured diameter and height data will be used to calculate annual diameter and height increment, which will be used to estimate inventory growth for the Activity Area.

The process to replace the maximum radial increment rates must occur at least two years after the initial sampling effort, based on the sampling date of the last plot in their initial forest inventory to enable sufficient growth to occur in individual trees. For each remeasured plot, the Forest Projects must follow the field sampling guidance in Appendix B to identify the tree species, defect, and vigor, and remeasure diameters and heights for each tree within the plot boundaries. Projects must then successfully complete sequential sampling for tCO₂e/ha of the updated inventory in a site visit verification. Once the resampled inventory has successfully passed a site visit verification, the increment in CALCBOSK will be adjusted based on the remeasured data and may be applied to the current and future Reporting Periods until further plots are resampled and verified during a site visit verification. The credit issuance in the verified Reporting Period for the Forest Project will likewise reflect the updated Forest Carbon inventory (i.e., including updated growth rates).

The Reserve will separately publish the maximum radial increment rates along with the updated CALCBOSK incorporating the maximum radial increment rates, and the methodology employed to derive the rates from the CONAFOR dataset.

² <https://snmf.cnf.gob.mx/datos-del-inventario/>

Section 8

2. Verification of Increment Sampling (CLARIFICATION – December 15, 2023)

Section: 8.3.6.2.1

Context: Verification of onsite carbon stocks during desk verifications is complete when the estimate of forest carbon change, or the actual onsite carbon stocks relative to the previous year's onsite carbon stocks, are within a reasonable fluctuation that reflects growth, harvest and natural disturbances from the previous year.

Table 0.1. Verification Requirements for Quantifying the Activity Area Actual Onsite Carbon Stocks: Improved Forest Management, Restoration, Reforestation, and Large Urban Forestry Activity Areas

5.1.1, Appendix B	Estimates of Actual Onsite Tree Carbon Stocks	Desk Verification	<p>1. Evidence that reported onsite carbon stocks are reasonable given reported harvest, growth, and disturbance effects since the prior reporting period.</p> <p>2. Updated map of Activity Areas delineating all areas affected by a natural disturbance in excess of 5 hectares or harvest event.</p>	<p>Moderate</p> <p>Verification is complete when:</p> <ul style="list-style-type: none"> the estimates of forest carbon change, or the actual onsite carbon stocks relative to the previous year's onsite carbon stocks, are within a reasonable fluctuation that reflects growth, harvest and natural disturbances from the previous year. verifier is satisfied with evidence that the reported harvested volume is accurate and that all plots affected by a natural disturbance or harvest event have been updated in the reported inventory.³

Clarification: During desk verifications, to ensure increment sampling is conservatively applied to calculate total tCO₂e removals, verification bodies must ensure that the growth increment applied in CALCBOSK does not surpass the maximum radial increment rates set for the ecotype, species class, and vigor class.

Forest Projects that resample 100% of their inventory at least two years after the initial inventory was completed may opt to conduct a site visit verification prior to the site visit verification required per the standard verification schedule (i.e., prior to the site visit required every six Reporting Periods for standalone projects) in order to demonstrate diameter and height increments above those otherwise applied, based on the maximum radial increment rates. Forest Projects that opt to resample 100% of their inventory and conduct the site visit

³ Up to 5% of the total inventory plots can be excluded for a given reporting period. Excluded plots are not used to calculate the reported inventory of CO₂e nor are they used to calculate the sampling error. Additionally, an excluded plot must be included in the next year's inventory, meaning the plot must be remeasured within the year prior to the next reporting period (see Section B.3.3).

verification must successfully complete sequential sampling for tCO₂e/ha in order to apply diameter and height increments above those based on the maximum radial increment rates.