Urban Forest Management Assessment Areas and Default Ratio Estimators

Introduction

Assessment areas are used in the Urban Forest Management Project Protocol (UFMPP) of the Climate Action Reserve (Reserve) to provide standardized carbon density values, referred to as default ratio estimators, for eligible project sites within common geographic regions. Default ratio estimators offer an alternative means for forest owners to develop an urban forest carbon inventory in lieu of on-the-ground sampling, which can be time-intensive and costly. The Reserve's UFMPP website provides map files delineating assessment areas, as well as an Assessment Area Data File, which lists current assessment areas and their assigned default ratio estimators.

Defining Assessment Areas

Assessment areas under the UFMPP are based on two types of geographic features—sampled cities, which are based on U.S. Census Bureau Urban Areas and Places, and terrestrial ecoregions, which are based on Level II Ecoregions from the Commission for Environmental Cooperation (CEC). The CEC Level II Ecoregions are the middle level of a nested hierarchy of ecoregions defined across North America— Level I Ecoregions (the most broadly defined level) are composed of multiple Level II Ecoregions, which are in turn composed of multiple Level III Ecoregions (the most specifically defined level). Whereas terrestrial ecoregions represent broad areas within the United States with general similarity in ecosystems and in the type, quality, and quantity of environmental sources, sampled cities are simply cities or urban areas for which a published study of carbon stocking per area of canopy cover in urban forests have been performed.

Such studies are ultimately the basis for default ratio estimator values assigned to assessment areas and must meet the following standards to be considered for use with the UFMPP:

- Must be from a peer-reviewed or US Forest Service publication
- Must be based on a random sampling design within an urban area or place that
    - Does not exclude any land use types
    - Includes all trees (e.g., not just trees along street corridors)
    - Can reasonably be associated with a Census Bureau-defined urban area or place

Sampled city-based assessment areas take precedence over terrestrial ecoregion-based assessment areas. In other words, where a sampled city exists, any portion of a project within that sampled city's boundaries is associated with that sampled city-based assessment area, regardless of the underlying terrestrial ecoregion(s) in which that sampled city may be.

Assigning Default Ratio Estimators

Once carbon density values for sampled cities have been determined, the carbon density of a given sampled city is assigned as the default ratio estimator for that sampled city. Carbon densities are assigned as default ratio estimators to terrestrial ecoregions according the logic described in Table 1.

Table 1. Logic for assignment of default ratio estimators to terrestrial ecoregions
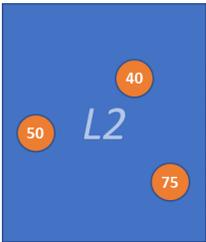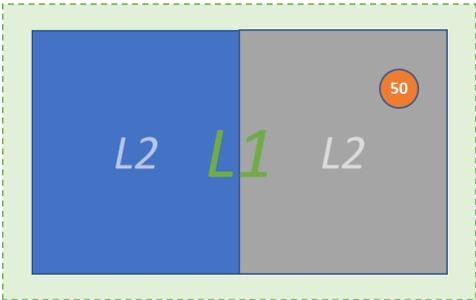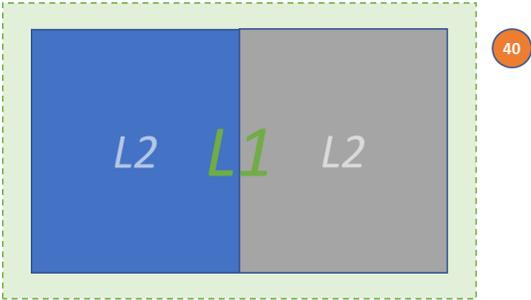
Geography		Default Ratio Estimator	
Illustration	**Description**	**Basis**	**Value**
	Level II Ecoregion contains 1 sampled city	Carbon density value for the lone sampled city contained by the terrestrial ecoregion	50
	Level II Ecoregion contains 2+ sampled cities	Lowest carbon density value among all sampled cities contained by the terrestrial ecoregion	40
	Level II Ecoregion contains no sampled cities but another Level II Ecoregion within the same Level I Ecoregion does	Ratio estimator value for sampled city (or lowest among all sampled cities if multiple) within the Level I Ecoregion	50
	Neither Level II Ecoregion nor the Level I Ecoregion it is within contain any sampled cities	Lowest ratio estimator value among all sampled cities in any Level II Ecoregion	40