



Chairman Mary Nichols and ARB Staff
Air Resources Board, California Environmental Protection Agency
1001 I Street
Sacramento, CA 95812

December 15, 2014

**RE: Comments on Proposed Revisions to Compliance Offset Protocol for U.S. Forest Projects
and Cap and Trade Regulation**

Chairman Nichols:

Spatial Informatics Group, LLC (SIG) has been a respected authority in environmental modeling and decision-making since 1999, and since 2010, has worked to design forest carbon inventories, model forest growth and yield, and quantify carbon sequestration on thirteen projects under Climate Action Reserve's Forest Protocol and California Air Resources Board's (ARB's) Compliance Offset Protocol for U.S. Forest Projects (Protocol). SIG's silvicultural, modeling, and quantitative expertise is helping generate nearly 7.5 million ARBOCs on over 400,000 acres.

Thank you for providing the opportunity to comment on the California Air Resources Board's (ARB's) proposed Regulatory Review Update to the Compliance Offset Protocol for U.S. Forest Projects (Protocol) and Regulation under AB32, as proposed on October 28, 2014. It is obvious that a great deal of time and energy was involved in the proposed changes. SIG has reviewed the proposed changes and concurs with the overwhelming majority. However, there are several changes which we believe, based on our experience working with the protocol and quantifying pools, would have detrimental effects on projects or adverse consequences on participants in Forest Offset Projects. Minor adjustments to these proposed changes would avoid adverse effects and increase the program's ability, and our common goal, of mitigating climate change and increasing sustainability of woodland ownership.

We have outlined the main issues identified and proposed adjustments in this letter. We first identify the relevant section of the Protocol; provide background and context to our concerns; discuss the implications of the revisions to the protocol; and then propose alternatives.

We thank you for the opportunity to review the proposed changes and provide comment. We believe that the ARB's Forest Offset Program is a rigorous and conscientious program, and have no doubt the Board and the Program's staff will continue to lead by example by considering the stakeholder comments received during this review process.

Thank you for your consideration,

A handwritten signature in black ink, appearing to read 'Charles Kerchner', is written over a light gray rectangular background.

Charles Kerchner, Ph.D
Senior Scientist and Program Manager, Spatial Informatics Group LLC

1. **New harvest unit requirements for minimum basal area and modified buffer rules:** The requirements for basal area retention and rules for buffers around areas reduced below a minimum basal area retention level (§3.1(a)(4)) have changed with no silvicultural, habitat, or hydrologic justification.

Background

- Under the current Protocol (ARB's FOP October, 2011), only clearcuts were affected by the 40 acre limit. The changes in ARB's proposed FOP would affect uneven-aged management as well.
- The language proposed in §3.1(a)(4)(A) of the new protocol appears to limit the maximum size of harvests that retain less than 50 ft²/ac of basal area to 40 acres.

Implications

- A three acre block used in a small-group or patch selection harvest in an uneven-age silvicultural system would already have a large proportion of its ground area receiving partial to full shade. Retention of 50 ft²/ac basal area in that patch to avoid the buffer requirement would further limit the ability of that patch to regenerate shade mid-tolerant and intolerant species and successfully be fully stocked by the new cohort.
- In many parts of the country, even-aged management is a viable way to regenerate a wide range of tree species while giving a competitive advantage to those of little to moderate shade tolerance. The retention requirement of 50 ft²/ac of basal area would affect both clearcuts as well as seed cuts of shelterwoods. 50 ft²/ac of basal area can be between B- and C-level stocking for many forest types, which is typically not low enough to induce significant quantities of desirable regeneration^{1, 2, etc.}
- Clearcuts or shelterwood harvest blocks larger than 40 acres are quite common in many parts of the country. Further, creating clearcuts next to other areas that have received heavy harvests, reducing basal area below 50 ft²/ac, is a valid technique to stimulate abundant regeneration across large areas, and attempt to reduce localized effects of ungulate browsing.
- The proposed language is confusing in that it prescribes a buffer width using an area (vs. distance) unit. For example, one interpretation of the language proposed in §3.1(a)(4)(B) would require a 40 acre clearcut to have a buffer 1,600 acres wide applied to its perimeter. On a square-shaped clearcut, the buffer would be applied to each side, resulting in a total buffer width of 1,600 + 1,600 = 3,200 acres (not including the width of the clearcut itself). Even a less stringent application of 1,600 acres of the total buffer size (2.5 mi²) is larger than is justifiable under, for example, silvicultural principles for

¹ Roach, Benjamin A.; Gingrich, Samuel F. 1968. Even-aged silviculture for upland central hardwoods. Agric. Handb. 355. Washington, D.C.: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 39 p.

² Leak, William B.; Solomon, Dale S.; DeBald, Paul S. 1987. Silvicultural guide for northern hardwood types in the Northeast (revised). Res. Pap. NE-603. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 36 p.

retention of seed trees of light-seeded species to ensure regeneration throughout all areas of a harvest³, or retention of perch sites for songbirds⁴.

- One significant benefit of even-aged management is the harvests provide large areas of early successional habitat for wildlife, particularly songbirds. Tubbs *et al.*⁴ provides basal area retention guidelines far below what the ARB prescribes. Retention of the proposed language will discourage even-age management and have an adverse effect on songbird habitat, overall biodiversity, and the “natural forest management” criteria in the protocol.

Proposed Solutions

- While this requirement may be quite applicable to California forests, it may contradict other jurisdictions’ regulatory requirements and best management practices. Following the state forestry laws, regulations, and BMPs – often developed with significant input from silviculturalists and biologists familiar with local forests – of the jurisdiction in which the project is located should be sufficient.
- The proposed language could be modified to include that a minimum basal area must be retained within Open Canopy Harvest Units, or a minimum number of stems per acre of seedlings of desirable species well-suited to the site must be present post-harvest. This ensures adequate stocking is maintained over time. For example, Maine Forest Service Rule, Chapter 20 requires a residual of 30 ft²/ac OR 450 stems/acre of acceptable growing stock post-harvest. The stems per acre ensure adequate stocking is maintained over time.
- The proposed language could instead adopt a requirement for a certified forester, or forester otherwise licensed or certified to practice forestry in the jurisdiction in which the project is located, to provide a silvicultural justification and attestation for harvests that cause stocking to below a certain basal area or stocking threshold.
- Projects that have a management plan and/or are certified by the Forest Stewardship Council, the Sustainable Forestry Initiative, or Tree Farm should be exempt from this requirement.
- Notwithstanding the above, the Protocol’s existing rules for Natural Forest Management and Balancing Age Classes are sufficient to ensure environmental integrity.

³ Oliver, Chadwick D.; Larson, Bruce C. 1996. Forest Stand Dynamics: Update Edition. New York: John Wiley & Sons, Inc. 520 p.

⁴ Tubbs, Carl H.; DeGraaf, Richard M.; Yamasaki, Mariko; Healy, William M. 1987. Guide to wildlife tree management in New England northern hardwoods. Gen. Tech. Rep. NE-118. Broomall, PA: U. S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 30 p.

2. **The modified method for establishing minimum baseline level (MBL) for Improved Forest Management (IFM) projects with initial carbon stocking (ICS) above CP:** Projects with ISC above CP are now required to include stocking levels on properties held by the Forest Owner outside the project area, but within the project's Logical Management Unit (LMU).

Background

- The current ARB FOP dated October, 2011 allows a landowner to select their most highly stocked land to participate in an IFM project. The proposed change eliminates this ability.

Implications

- The new method for establishing MBL in the proposed Protocol could lead to increased GHG emissions compared to the existing Protocol's method of establishing MBL for projects with ICS above Common Practice. Consider the following example to elucidate this point. A landowner has 7,000 acres with 3,000 acres above Common Practice. Under the existing protocol, there is enough of an incentive for a landowner to enroll the 3,000 acres with ICS above Common Practice and maintaining or increasing carbon stocks over 100+ years. However, under the new proposed method for defining MBL, the same landowner must include all 7,000 acres in the Project Area. Unfortunately, the weighted average above live carbon stocks (WCS) of the 7,000 acres falls below the Common Practice and the project is no longer a financially viable ARB offset project. Thus, instead of enrolling the 3,000 acres in ARB's offset program and securing the existing carbon stocks of the 3,000 acres for 100+ years and mitigating climate change, the landowner is disinclined to participate in ARB's program. As a result of not participating in ARB's program, the economic conditions of the landowner could dictate him/her to liquidate the timber if needed on the 3,000 acres, incurring net GHG emissions.

Proposed Solutions

- The existing method of establishing CP is adequate for IFM projects. The current default leakage deductions sufficiently and conservatively account for harvest shifting. Additional restrictions are unwarranted.

3. **The Common Practice (CP) values update:** Based on the newly incorporated Forest Inventory and Analysis (FIA) data and changes in the way site class is determined, CP values have generally increased in assessment areas.

Implications

- CP values, that do not take into account the temporal dynamics of market conditions and forest stocking, could increase GHG emissions and have potentially unintended consequences on climate change mitigation goals.

Proposed Solutions

- Forest Offset Projects occur over long time periods; the temporal base on which these projects are justified – CP values – should be commensurate with that timespan. CP values could be based on a longer average of perhaps 25 years.

- The protocol for developing CP values should be transparent and predictable. Once a framework is developed, a timetable can be set, working groups assembled, and public comment and review of proposed CP values undertaken before they are adopted.

4. **Decreases in standing live tree carbon stocks over any 10 year consecutive period must be declared at the time of forest project's listing:** The proposed Protocol §3.1(b) states that "To be eligible under this protocol, a forest offset project must not...experience a decrease in the standing live tree carbon stocks over any 10 year consecutive period except if...the decrease is associated with a planned balancing of age classes...and is detailed in a long-term management plan...at the time of forest project's listing [emphasis added]."

Background

- The ARB FOP October, 2011 protocol version also contains this requirement. However, no landowners could likely anticipate the interplay of markets, forest health issues, or stand dynamics well enough over 25 years (a crediting period) or even 100 years, to declare with any accuracy their intent, at time of forest project's listing, to balance age classes and thus decrease stocks over any 10 year period during the project's life.

Implications

- Landowners may plan to harvest immediately upon listing of a project and may not feel stocks will decline over a 10 year period. However, due to unforeseen circumstances, if the landowner was unable to harvest immediately following the first verification, carbon stocks could rise to a point where the delayed harvesting would cause standing live carbon stocks to decline over a 10 year period to balance age classes. In this scenario, the landowner would be out of conformance, because he/she did not give notice during project listing.

Potential solutions

- Unforeseen circumstances arise constantly. Most jurisdictions allow for amendments to forest management plans required for a variety of regulatory purposes, as long as changes are consistent with sound silvicultural principles. Allowing intentions to reduce stocking to be declared at the time of the initial OPDR, verification, or even better, when an annual report is filed, would better reflect the realities of forest management.

5. **Wood products stored in the baseline scenario:** The quantification methodology for estimating baseline carbon in harvested wood products in IFM projects removed the text, relative to ARB's FOP October, 2011 version, explicitly stating that the quantity was to be averaged over 100 years.

Background

- ARB's October, 2011 Protocol version §6.2.3 (2) states "On an annual basis, determine the amount of harvested carbon that would have remained stored in wood products, averaged over 100 years, following the requirements and methods in Appendix C."
- The corresponding section in the proposed Protocol, §5.2.3 (b), makes no mention of averaging carbon stored in wood products over 100 years, but says, "On an annual basis, determine the amount of carbon in standing live and standing dead trees (bole only,

excluding bark) that would have been harvested during the reporting period for the purpose of producing wood products and would have remained stored in wood products over 100 years, following the requirements and methods in appendix C; trees of noncommercial sizes and species are excluded.”

Implications

- This proposed change would dramatically increase the estimates of carbon stored in wood products in the baseline scenario.

Proposed Solutions

- We recognize the change in wood product language was likely unintentional. We suggest changing the language to reflect the language in ARB’s FOP October, 2011 version where carbon in stored wood products is averaged over 100 years.