

**Comment 1 for Forestry Greenhouse Gas Accounting Protocols (forestghg07)**  
**- Non-Reg.**

First Name: Aimee  
Last Name: Barnes  
Email Address: aimee.barnes@ecosecurities.com  
Affiliation: EcoSecurities

Subject: Carbon Market Investors Support Adoption of the California Registry's Forest  
Comment:

Attached please find EcoSecurities' letter regarding ARB adoption  
of forestry protocols.

Attachment: '[https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/1-ecosecurities\\_letter.pdf](https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/1-ecosecurities_letter.pdf)'

Original File Name: EcoSecurities Letter.pdf

Date and Time Comment Was Submitted: 2007-10-11 11:51:37

No Duplicates.

**Comment 2 for Forestry Greenhouse Gas Accounting Protocols (forestghg07)**  
**- Non-Reg.**

First Name: Rhea

Last Name: Hale

Email Address: [jpanek@arb.ca.gov](mailto:jpanek@arb.ca.gov)

Affiliation:

Subject: Forestry Protocols

Comment:

Attached please find American Forest and Paper Association's letter regarding ARB adoption of forestry protocols.

Attachment: '[https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/2-af\\_paletter.pdf](https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/2-af_paletter.pdf)'

Original File Name: AF&PALetter.pdf

Date and Time Comment Was Submitted: 2007-10-11 11:54:41

No Duplicates.

**Comment 3 for Forestry Greenhouse Gas Accounting Protocols (forestghg07)**  
**- Non-Reg.**

First Name: California  
Last Name: Legislature  
Email Address: [jpanek@arb.ca.gov](mailto:jpanek@arb.ca.gov)  
Affiliation:

Subject: Support for adoption of the CCAR forestry protocols  
Comment:

Attached please find the California Legislature letter regarding  
ARB adoption of the CCAR forestry protocols.

Attachment: '[https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/3-ca\\_legislature\\_letter.zip](https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/3-ca_legislature_letter.zip)'

Original File Name: CA Legislature Letter.zip

Date and Time Comment Was Submitted: 2007-10-11 11:59:19

No Duplicates.

**Comment 4 for Forestry Greenhouse Gas Accounting Protocols (forestghg07)**  
**- Non-Reg.**

First Name: Steve

Last Name: Brink

Email Address: steveb@cwo.com

Affiliation:

Subject: Comments on Climate Action Registry Forestry Protocols as AB32 Early Action

Comment:

Attached please find CFA's comments on ARB's adoption of CCAR  
Forestry Protocols.

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/4-cfaletter.pdf>'

Original File Name: CFALetter.pdf

Date and Time Comment Was Submitted: 2007-10-11 12:01:39

No Duplicates.

**Comment 5 for Forestry Greenhouse Gas Accounting Protocols (forestghg07)**  
**- Non-Reg.**

First Name: Eric

Last Name: Carleson

Email Address: Non-web submitted comment

Affiliation:

Subject: Association Californi Loggers

Comment:

Please see attached

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/5-07103com0001.pdf>'

Original File Name: 07103com0001.pdf

Date and Time Comment Was Submitted: 2007-10-12 11:43:53

No Duplicates.

**Comment 6 for Forestry Greenhouse Gas Accounting Protocols (forestghg07)**  
**- Non-Reg.**

First Name: Osha

Last Name: Meserve

Email Address: Non-web submitted comment

Affiliation:

Subject: Support for Endorsing the California Registry's Forest Protocols

Comment:

Please see attached

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/6-071030001.pdf>'

Original File Name: 071030001.pdf

Date and Time Comment Was Submitted: 2007-10-12 12:12:41

No Duplicates.

**Comment 7 for Forestry Greenhouse Gas Accounting Protocols (forestghg07)**  
**- Non-Reg.**

This comment was posted then deleted because it was unrelated to the Board item or it was a duplicate.

**Comment 8 for Forestry Greenhouse Gas Accounting Protocols (forestghg07)**  
**- Non-Reg.**

First Name: John

Last Name: Reaves

Email Address: Non-web submitted comment

Affiliation:

Subject: Agenda Reguarding Ways to Improve energy and Water efficiency and reduce GHG in California

Comment:

Please see attached

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/8-07103com0002.pdf>'

Original File Name: 07103com0002.pdf

Date and Time Comment Was Submitted: 2007-10-12 12:36:29

No Duplicates.

**Comment 9 for Forestry Greenhouse Gas Accounting Protocols (forestghg07)**  
**- Non-Reg.**

First Name: Chantz  
Last Name: Joyce  
Email Address: clfa@volcano.net  
Affiliation: CLFA

Subject: CCAR Forestry Protocols

Comment:

Attached please find the CLFA letter regarding ARB adoption of the CCAR forestry protocols.

Attachment: '[https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/9-clfa\\_letter.pdf](https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/9-clfa_letter.pdf)'

Original File Name: CLFA Letter.pdf

Date and Time Comment Was Submitted: 2007-10-12 14:12:10

No Duplicates.

**Comment 10 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Brian

Last Name: O'Neill

Email Address: [jpanek@arb.ca.gov](mailto:jpanek@arb.ca.gov)

Affiliation:

Subject: Comment on the proposed endorsement of the forestry GHG protocols

Comment:

Attached please find the NPS letter regarding adoption of CCAR  
forestry protocols.

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/10-npsletter.pdf>'

Original File Name: NPSLetter.pdf

Date and Time Comment Was Submitted: 2007-10-12 14:25:11

No Duplicates.

**Comment 11 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Debbie

Last Name: Hammel

Email Address: [jpanek@arb.ca.gov](mailto:jpanek@arb.ca.gov)

Affiliation: NRDC

Subject: Support for adoption of the CCAR Forestry Protocols

Comment:

Attached please find the NRDC letter regarding adoption of the CCAR Forestry protocols.

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/11-nrdcletter.pdf>'

Original File Name: NRDCLetter.pdf

Date and Time Comment Was Submitted: 2007-10-12 14:28:18

No Duplicates.

## **Comment 12 for Forestry Greenhouse Gas Accounting Protocols (forestghg07) - Non-Reg.**

First Name: Laurie  
Last Name: Wayburn  
Email Address: [jpanek@arb.ca.gov](mailto:jpanek@arb.ca.gov)  
Affiliation: Organizations

Subject: Support for adoption of the CCAR Forestry Protocols

Comment:

Signed,  
Laurie Wayburn  
Pacific Forest Trust

Louis Blumberg  
The Nature Conservancy

Paul Mason  
Sierra Club California

Darla Guenzler  
California Council of Land Trusts

Karen Douglas  
Environmental Defense

Jeff Shellito  
California Trout

Rachel Dinno  
Trust for Public Land

Chris Kelly  
The Conservation Fund

Sara Barth  
The Wilderness Society

Brian Johnson  
Trout Unlimited

Mike Skuja  
Defenders of Wildlife

Ruskin Hartley  
Save the Redwoods League

Warren Alford  
Sierra Forest Legacy

Tom Steinbach  
Greenbelt Alliance

Janet Santos Cobb  
California Oaks Foundation

Scott Smithline  
Californians Against Waste

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/12-organizationsletter.pdf>'

Original File Name: OrganizationsLetter.pdf

Date and Time Comment Was Submitted: 2007-10-12 14:32:04

No Duplicates.

**Comment 13 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Mark

Last Name: Pawlicki

Email Address: [jpanek@arb.ca.gov](mailto:jpanek@arb.ca.gov)

Affiliation: Sierra Pacific Industries

Subject: Comments on Climate Action Registry Forest Sector and Project Protocols

Comment:

Attached please find SPI letter regarding ARB adoption of CCAR  
Forestry protocols.

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/13-spiletter.pdf>'

Original File Name: SPILetter.pdf

Date and Time Comment Was Submitted: 2007-10-12 14:34:43

No Duplicates.

**Comment 14 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Louis

Last Name: Blumberg

Email Address: [lblumberg@tnc.org](mailto:lblumberg@tnc.org)

Affiliation: The Nature Conservancy

Subject: California Climate Action Registry Forestry Protocols

Comment:

Attached please find TNC letter regarding ARB adoption of the CCAR  
forestry protocol.

Attachment: '[https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/14-tnc\\_ltr\\_to\\_carb\\_9-25.pdf](https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/14-tnc_ltr_to_carb_9-25.pdf)'

Original File Name: TNC ltr to CARB 9-25.pdf

Date and Time Comment Was Submitted: 2007-10-12 14:37:29

No Duplicates.

**Comment 15 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Andrea

Last Name: Tuttle

Email Address: atuttle@suddenlink.net

Affiliation:

Subject: Support California Forest Protocols as an Early Action Measure

Comment:

Attached please find letter regarding ARB adoption of CCAR Forestry protocols.

Attachment: '[https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/15-tuttle\\_support\\_ltr\\_carb\\_forprots\\_oct\\_25-07.pdf](https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/15-tuttle_support_ltr_carb_forprots_oct_25-07.pdf)'

Original File Name: Tuttle Support Ltr CARB ForProts Oct 25-07.pdf

Date and Time Comment Was Submitted: 2007-10-12 14:44:18

No Duplicates.

**Comment 16 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Sara

Last Name: Berth

Email Address: [jpanek@arb.ca.gov](mailto:jpanek@arb.ca.gov)

Affiliation: The Wilderness Society

Subject: Endorsement of the California Climate Action Registry Forest Protocols

Comment:

Attached please find The Wilderness Society letter regarding CCAR  
Forestry Protocols.

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/16-twsletter.pdf>'

Original File Name: TWSLetter.pdf

Date and Time Comment Was Submitted: 2007-10-12 14:46:36

No Duplicates.

**Comment 17 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Sara  
Last Name: Kendall  
Email Address: Sara.Kendall@Weyerhaeuser.com  
Affiliation: Weyerhaeuser

Subject: Comments on the CCAR Forestry Protocols

Comment:

Attached please find Weyerhaeuser comments on ARB adoption of CCAR Forestry protocols.

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/17-weyerhaeuserletter.pdf>'

Original File Name: WeyerhaeuserLetter.pdf

Date and Time Comment Was Submitted: 2007-10-12 14:50:00

No Duplicates.

**Comment 18 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Laurie

Last Name: Wayburn

Email Address: pft@pacificforest.org

Affiliation:

Subject: The Pacific Forest Trust

Comment:

Please see attached.

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/18-07103com0003.pdf>'

Original File Name: 07103com0003.pdf

Date and Time Comment Was Submitted: 2007-10-16 16:38:27

No Duplicates.

**Comment 19 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Janet

Last Name: Cobb

Email Address: oakstaff@californiaoaks.org

Affiliation:

Subject: California Oak Foundation

Comment:

Please see attached.

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/19-7103com0001.pdf>'

Original File Name: 7103com0001.pdf

Date and Time Comment Was Submitted: 2007-10-16 16:43:14

No Duplicates.

**Comment 20 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Vicki

Last Name: Jackson

Email Address: Non-web submitted comment

Affiliation:

Subject: USDA Comment of Forestry-Sector Greenhouse Gas

Comment:

Please see attached.

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/20-forestghgcom0001.pdf>'

Original File Name: forestghgcom0001.pdf

Date and Time Comment Was Submitted: 2007-10-17 14:29:38

No Duplicates.

**Comment 21 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Brian

Last Name: O'Neill

Email Address: Non-web submitted comment

Affiliation:

Subject: US Department of Interior- National Park Service Comment

Comment:

Please see attached.

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/21-forestghgcom0002.pdf>'

Original File Name: forestghgcom0002.pdf

Date and Time Comment Was Submitted: 2007-10-17 15:38:51

No Duplicates.

## **Comment 22 for Forestry Greenhouse Gas Accounting Protocols (forestghg07) - Non-Reg.**

First Name: Mark

Last Name: Harmon

Email Address: mark.harmon@oregonstate.edu

Affiliation: Oregon State University

Subject: comments on Forest Protocols

Comment:

Mary Nichols, Chair  
California Air Resources Board  
Sacramento, CA 95812  
Fax: (916) 322 - 3928

Re: CARB Consideration of the California Climate Action Registry  
Forest Protocols

Dear Chair Nichols and other members of the Air Resources Board:

I am writing your board to clarify some of the scientific and technical issues related to the proposed California Climate Action Registry Forest Protocols that appear to have been raised in discussions leading up to the California Air Resources Board's deliberations on endorsement of the Forest Protocols. I do so as a scientist that has been involved in studying the issue of carbon stores in forests for over 20 years. During this time I have published scores of peer-reviewed papers on this subject, developed models of the processes involved, taught undergraduate and graduate level classes, presented findings in national and international scientific conferences and symposia as well as public and government briefings, and been involved in the development of national level research plans to study carbon dynamics. I am considered to be an expert in this arena and my advice has been sought out by fellow scientists, government agencies (state and federal), private land owners, consultants, NGO's and many others. In fact I was asked to provide guidance on the Forest Protocols when they were initially being developed.

Below I list some important points regarding specific issues that appear to have been raised.

### **Carbon Sequestration by Younger versus Older Forests**

It is very disappointing to find that arguments are still being made that younger forests are better for climate mitigation than older ones. The mistaken basis for this argument is that younger forests store carbon at faster rates than older forests. There is a grain of truth to the assertion that forests at a relatively young age do have the potential to take up more carbon than older forests. But it is also true that forests younger than this optimum age also take up less carbon. Indeed immediately after disturbance very young forests are releasing carbon as the dead material caused by the disturbance (including timber harvests)

decomposes. Averaged over the entire period between disturbances, the average flow into a forest equals the amount going out as long as the same type of disturbance is repeated. This finding has been repeatedly demonstrated in scientific examinations of this issue. The key is therefore not the rate of carbon uptake or release at any particular time, but the average amount stored over time. I am not aware of a single scientific study in which the average carbon store of a forest disturbed by clear cut harvesting at a long interval is smaller than one disturbed at a shorter interval. Not a single study, and I just performed a literature search on this very issue. In addition to the interval between disturbances, another important factor is the amount of carbon removed by each disturbance. Timber harvest, clear cutting in particular, removes more carbon from the forest than any other disturbance (including fire). The result is that harvesting forests generally reduces carbon stores and results in a net release of carbon to the atmosphere.

Another mistaken notion is that the Forest Protocols should focus on rates of uptake and not changes in stores or stock changes. Scientists refer to these rates of carbon uptake and release as fluxes. One must measure all the positive and negative fluxes to understand the overall balance (much like in a bank balance in which one must account for all the sources of income and expenses for it to make sense). Simple mathematics tells us that as long as all the relevant fluxes in and out of the forest are measured the answer will be the same as if the changes in stocks are measured. The only difference is that measuring changes in stocks is far easier and cheaper than accounting for all the fluxes. Scientists measure fluxes to understand the mechanisms, but there is no need to do this to determine the net change in carbon stores. A net increase in stores is related to a positive flux into the forest, a net decrease a negative flow out to the atmosphere, and no change means the flows in and out are equal. Both methods are scientifically valid.

#### Accounting for Wood Products

In the Forest Protocols wood products are treated as an optional carbon store. I believe this is completely appropriate for several reasons. While it is true that some of the carbon harvested from a forest is stored for a period of time it is not the case that this material is stored forever. Similar to other forest-related pools, it is the balance of inputs versus outputs that determines whether the wood products pool is increasing or decreasing. Not all harvested carbon results in storage into longer term pools. A considerable amount, estimated by the guidelines to be 40%, is released to the atmosphere during manufacturing and initial use. The remaining amount suffers losses during use from fires, decomposition, and other factors. We know this because about half the wood products that are produced today are used to replace the ones that have been in use. I believe the Forest Protocols addresses these issues adequately by providing reasonable conversion factors, manufacturing losses, and product life-spans that are based on previous peer-reviewed scientific studies.

Setting aside the specifics of how forest products could be tracked, there are several reasons to make forest products optional at this time. First, is that even when this store is included it only comprises a small fraction of the total forest system stock of carbon. Again, based on a recent literature

review, less than 20% of the total forest system carbon story is held in forest products. The average fraction is likely less than 10%. Second, unlike carbon in the forest itself, it is impossible to specifically account for where forest products end up. Therefore there is no way to confirm the carbon stores are actually present. At least with a forest one can visit the actual site of storage. Third, it is difficult to demonstrate the new forest products meet additionality requirements: some of the new material replaces old material and hence there is no real additionality. Granted the new harvest may help to maintain current stores in forest products and that is accounted for under the proposed Forest Protocols. Fourth, the project supplying the raw material has a limited ability to control the various products that are produced and how and where they are used, which means that the exact contribution to forest products pools is highly uncertain. At best the average storage rates can be computed until a better way (probably incurring a great deal of expense) to track the actual uses and life-span of products is developed.

#### Use of default biomass coefficients

While it would be ideal if one could directly measure all the carbon in a forest this is not practical at this time. Instead one must relate the size of the trees and other items to the amount of carbon they store. By making very detailed measures of dimensions of each object (e.g., each tree) one can compute volumes and coupling that with measurements of carbon content per unit volume of each object one can very precisely determine carbon stores in many kinds of forest pools. Unfortunately that would be a very expensive process. A more economical approach is to develop biomass equations from a subsampling of trees or other objects. However, this too is has considerable expense and requires technical training. For those unable to develop or afford project specific biomass equations, the Forest Protocols provide default biomass regression equations that are reasonable and sound. These default equations were developed by respected and leading scientists in the field of forest inventory (Richard Birdsey, Linda Heath, Jennifer Jenkins and David Chojnacky) and were based on a nationwide literature search using many thousands of diameter measurements from a wide selection of many North American tree species. The equations were peer-reviewed, published by the USDA Forest Service, and have become a national standard for scientific study.

I see benefits other than economic ones in using the standardized default equations. It places everyone on equal footing and allows for standardized checking of results. While the absolute carbon store may be systematically over- or underestimated by these equations, these biases are greatly reduced when the net change in stocks is considered. I see nothing whatsoever preventing landowners from developing site specific biomass equations that are more accurate than the default ones. The only restriction is that the equations are approved by a third-party certifier, a step that is essential to assure a credible program.

#### Use of growth and yield models

At the start of any project, it is logical to project the potential increases in carbon stocks. Projects unable to at least predict a positive increase in carbon stores should not be considered viable. Projections are ideally based on results from similar kinds of projects, but given the early stages of forest

carbon management, these data rarely exist. A viable alternative is to use models to estimate potential project benefits. The Forest Protocols specify a number of timber growth and yield models including CACTOS (California Conifer Timber Output Simulator), CRYPTOS (California Conifer Timber Output Simulator), FVS (Forest Vegetation Simulator), SPS (Stand Projection System), VFP (Visual Forester Professional), and FREIGHTS (Forest Resource Inventory Growth, and Harvest Tracking System). I will not comment on the merits of these specific models, however, I do note they were pre-approved by the California Climate Action Registry and the California Department of Forestry and Fire Protection which would seem to be the appropriate institutions to conduct a model evaluation and approval. If the models have a shortcoming it is that they are largely focused on the live part of the forests and do not include the other forest carbon pools. Still it is unlikely that forests will increase overall carbon stores if the tree stores are decreasing; therefore these models are a logical starting point.

As with other aspects of the Forest Protocols, projects are given flexibility to develop their own projection models so long as they have been reviewed by technically competent peers, are parameterized for the specific conditions of the project, are used within the scope for which they were developed and evaluated, and are clearly documented. Frankly I do not understand why anyone would trust a model that was not reviewed, was parameterized for a different set of conditions, and used for purposes it was not developed for or was not documented. That would be completely illogical. The Protocols also correctly point out that a sensitivity analysis should be performed and that the models should be periodically reviewed. Clearly it would be impossible to understand any model unless one understands the various uncertainties associated with it. Periodic review is required because models change as does the science they are based upon. The Forest Protocol requirements of annual reporting and direct sampling of forest carbon (over ten year intervals) ensure that the model projections are compared with ground-level data. By coupling models and data one can more accurately forecast future changes in carbon stores. Besides, the measured changes in carbon stores are what actually happened, projections just what might have happened.

#### Requiring Confidence Level be Determined

While it is true carbon is carbon, not all carbon stores projects are equally credible. There are two facets to this issue. The first is whether the project plan itself is viable. The Forest Protocols deal with this issue by requiring information on the location, climate, likely disturbances, longevity, proposed activity and other factors that might influence the storage of carbon. Projects failing to meet these requirements should not be considered viable. The second is that those potentially viable projects demonstrating actual increases in carbon stocks should have more value than ones that do not. As projects are likely to use a range of sampling methods, the Forest Protocols correctly uses the degree of statistical confidence to modify the estimate of carbon stocks. These are used as deductions to provide a conservative estimate of the most likely carbon store in a project.

This is entirely appropriate given underestimating stores causes less potential environmental damage than overestimating the

stores. While this approach emphasizes the effect of sampling errors (there are other kinds that are not considered), it is a completely rigorous and technically sound way to factor in the quality of the carbon store estimate. Given the sliding scale of deductions the managers of a project can decide if the gains in carbon related to reducing uncertainty outweigh the costs of increased sampling. Therefore this sliding scale discount approach provides flexibility to landowners while ensuring a high level of confidence in forest carbon estimates.

Thank you for taking the time to consider these comments concerning several scientific and technical aspects of the California Climate Action Registry Forest Protocols. I hope my input clarifies several potential misunderstanding and leads you toward the logical decision of endorsing the Forest Protocols as a voluntary early action measure.

Sincerely,

Mark E. Harmon  
Richardson Chair and Professor  
Forest Science

Attachment: '[https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/22-ca\\_air\\_quality\\_board-forest\\_products\\_protocols-harmon-letterhead.doc](https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/22-ca_air_quality_board-forest_products_protocols-harmon-letterhead.doc)'

Original File Name: CA air Quality Board-forest products protocols-harmon-letterhead.DOC

Date and Time Comment Was Submitted: 2007-10-17 15:40:02

No Duplicates.

**Comment 23 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: James  
Last Name: Boyd  
Email Address: [slivings@arb.ca.gov](mailto:slivings@arb.ca.gov)  
Affiliation: California Energy Commission

Subject: CCAR Forestry Protocols

Comment:

Please see attached

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/23-cecletter.pdf>'

Original File Name: CECLetter.pdf

Date and Time Comment Was Submitted: 2007-10-18 09:57:32

No Duplicates.

**Comment 24 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Bob  
Last Name: Epstein  
Email Address: [slivings@arb.ca.gov](mailto:slivings@arb.ca.gov)  
Affiliation: Environmental Entrepreneurs

Subject: CCAR Forestry Protocols

Comment:

Please see attached

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/24-e2letter.pdf>'

Original File Name: E2Letter.pdf

Date and Time Comment Was Submitted: 2007-10-18 09:59:46

No Duplicates.

**Comment 25 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Timothy  
Last Name: O'Connor  
Email Address: [slivings@arb.ca.gov](mailto:slivings@arb.ca.gov)  
Affiliation: Environmental Defense

Subject: CCAR Forestry Protocols  
Comment:

Please see attached

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/25-ed.pdf>'

Original File Name: ED.pdf

Date and Time Comment Was Submitted: 2007-10-18 10:01:49

No Duplicates.

**Comment 26 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Tom  
Last Name: Arnold  
Email Address: [slivings@arb.ca.gov](mailto:slivings@arb.ca.gov)  
Affiliation: Various Organizations

Subject: CCAR Forestry Protocols  
Comment:

Please see attached

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/26-industryletter.pdf>'

Original File Name: IndustryLetter.pdf

Date and Time Comment Was Submitted: 2007-10-18 10:04:31

No Duplicates.

**Comment 27 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Bill

Last Name: Stewart

Email Address: stewart@nature.berkeley.edu

Affiliation: UCB Forestry Specialist

Subject: Moving towards an effective portfolio of forest protocols

Comment:

Letter attached

Attachment: '[https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/28-oct\\_07\\_stewart\\_carb\\_forest\\_protocols.pdf](https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/28-oct_07_stewart_carb_forest_protocols.pdf)'

Original File Name: Oct 07 Stewart CARB forest protocols.pdf

Date and Time Comment Was Submitted: 2007-10-19 09:28:00

No Duplicates.

**Comment 28 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Terry  
Last Name: O'Day  
Email Address: today@environmentnow.org  
Affiliation: Environment Now

Subject: Support for Climate Registry Forest Protocols

Comment:

Please see attached letter supporting adoption of forest protocols.

Thank you,

Terry O'Day

Attachment: '[https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/29-en\\_letter\\_to\\_arb\\_on\\_forest\\_protocols\\_draft.pdf](https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/29-en_letter_to_arb_on_forest_protocols_draft.pdf)'

Original File Name: EN letter to ARB on forest protocols draft.pdf

Date and Time Comment Was Submitted: 2007-10-23 14:35:28

No Duplicates.

## **Comment 29 for Forestry Greenhouse Gas Accounting Protocols (forestghg07) - Non-Reg.**

First Name: Cynthia

Last Name: Cory

Email Address: [ccory@cfbf.com](mailto:ccory@cfbf.com)

Affiliation: California Farm Bureau Federation

Subject: CCAR Forestry Greenhouse Gas Accounting Protocols

Comment:

The California Farm Bureau Federation has been very active in the AB 32 implementation process. One of our senior staff sits on the Economic and Technology Advancement Advisory Committee. We have fully supported her activities as the Co-chair of the Agriculture and Forestry sector. She has spent significant amount of time working with the agriculture and forestry communities to obtain their input for an important report the ETaac committee will complete by January 2008.

During the ETaac process, we have heard loud and clear from the working foresters that there are barriers for use and technical shortcomings with the forestry protocol developed by the California Climate Action Registry. The dialogue at the September 6th CARB forestry protocol public consultation meeting made clear to the CARB staff and participants that there are serious inadequacies in the existing forestry protocol that need to be addressed.

As previously requested of Governor Schwarzenegger and CARB Chair Mary Nichols, we ask CARB members to publicly acknowledge that additional forestry protocols need to be developed that will reflect a "working forest" and will allow the majority of the forest community to participate in a valid greenhouse reduction effort. When CARB considers Agenda item 07-10-3 on October 25, 2007, we ask that the need for development of a "working forest" protocol with a completion deadline of August 2008 be included in any resolution that is adopted regarding the current CCAR forestry protocol.

The existing CCAR forestry protocol has been in-place for nearly three years. There has been only one registrant to date with a second registrant in process. These two registrants represent less than 1/10 of 1 percent of California's forestlands. Unless another forestry protocol is developed that reflects working landscapes, nearly all of California's forest landowners will have to seek carbon-marketing opportunities elsewhere out-of-state.

Specific areas of concern that we would like to see addressed in a workable forestry protocol are:

- Baseline. California forestry should be able to compete on a level playing field in the global economy. At minimum, our forest protocols need to integrate with emerging regional and national standards. It makes no sense to reward states that have lower regulatory baselines with higher levels of tradable carbon credits.

• Permanence. The requirements of SB 812, as carried into the current protocols, require CCAR forestry participants to secure a permanent conservation easement. We believe this requirement is unrealistic and a huge deterrent to willing landowner participation. The issue can be handled in a number of fiscally sound, legally binding ways. An example would be a long-term agreement between a forest landowner and credit purchaser.

• Forest Products. In the current protocols when a tree is cut it is treated as an emission. We know this not to be the case in the real world. There needs to be a proper accounting of products and end uses of wood fiber. Wood is the most climate friendly building commodity, comparing extremely favorably in total product life cycle with non-renewables such as steel and concrete. Forest protocols that discourage the use of wood products actually encourage product substitutes carrying larger carbon footprints.

• Inventory Expense. Foresters are highly qualified to make measurements necessary to estimate forest carbon. Statistical sampling schemes should be rigorous and verifiable, but cost-effectiveness is always a consideration. If sampling expenses are too high in relation to expected landowner benefits, the work will not be done and opportunities lost.

• National Forests. National forests contain approximately half of the high quality timberland in the state representing a huge potential carbon sink, if properly managed. Fuel treatment efforts are lagging, contributing to the increasing occurrence of catastrophic forest fires and greenhouse gas emissions. Many areas also lack adequate reforestation after wildfires leading to brush fields and long term forest loss.

We take our role in the AB 32 implementation process very seriously and are seeking economical and effective GHG reductions that agriculture and forestry can provide. Our livelihoods depend on these biological ecosystems; thus, we understand their complexity and the need to have a diverse set of approaches to reach the AB 32 GHG reduction goals in a sustainable manner.

We look forward to continued dialogue with CARB members on this issue of great importance to implementing the Global Warming Solutions Act of 2006 and thank you for consideration of our request.

Attachment: "

Original File Name:

Date and Time Comment Was Submitted: 2007-10-23 18:01:13

No Duplicates.

**Comment 30 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Janet  
Last Name: Lamkin  
Email Address: [slivings@arb.ca.gov](mailto:slivings@arb.ca.gov)  
Affiliation: Bank of America

Subject: CCAR Forestry Protocols

Comment:

See Attached

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/31-bofaletter.pdf>'

Original File Name: BofALetter.pdf

Date and Time Comment Was Submitted: 2007-10-24 10:48:53

No Duplicates.

**Comment 31 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Terry

Last Name: Collins

Email Address: [tcollins@collinsco.com](mailto:tcollins@collinsco.com)

Affiliation:

Subject: Collins Pine Company

Comment:

Please see attached.

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/32-07103com0001.pdf>'

Original File Name: 07103com0001.pdf

Date and Time Comment Was Submitted: 2007-10-24 11:20:05

No Duplicates.

## **Comment 32 for Forestry Greenhouse Gas Accounting Protocols (forestghg07) - Non-Reg.**

First Name: Staci

Last Name: Heaton

Email Address: [sheaton@rcrcnet.org](mailto:sheaton@rcrcnet.org)

Affiliation: Regional Council of Rural Counties

Subject: Comments on Proposed Adoption of California Climate Action Registry Forestry Protocols

Comment:

Attached please find RCRC's comments on the Proposed Adoption of California Climate Action Registry Forestry Greenhouse Gas Accounting Protocols. Please contact me if you have any questions.

Staci Heaton  
RCRC Director of Regulatory Affairs

Attachment: '[https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/33-slh.102407.ltr.arb\\_forestry\\_protocols.doc](https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/33-slh.102407.ltr.arb_forestry_protocols.doc)'

Original File Name: slh.102407.ltr.ARb Forestry Protocols.doc

Date and Time Comment Was Submitted: 2007-10-24 11:51:10

No Duplicates.

**Comment 33 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

This comment was posted then deleted because it was unrelated to the Board item or it was a duplicate.

**Comment 34 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Steve

Last Name: Brink

Email Address: steveb@cwo.com

Affiliation: California Forestry Association

Subject: relevant paper to be included with CFA comment

Comment:

Please include attached paper in the CFA comments.

Attachment: '[https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/35-070904\\_ruddell\\_role\\_for\\_managed\\_forests\\_in\\_climate\\_change\\_mitigation.pdf](https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/35-070904_ruddell_role_for_managed_forests_in_climate_change_mitigation.pdf)'

Original File Name: 070904\_ruddell\_Role for Managed Forests in Climate Change Mitigation.pdf

Date and Time Comment Was Submitted: 2007-10-24 11:54:56

No Duplicates.

**Comment 35 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Pam

Last Name: Giacomini

Email Address: george.gentry@fire.ca.gov

Affiliation: California Board of Forestry

Subject: CCAR Forest Protocols

Comment:

Attached please find BOF letter regarding CCAR forestry protocols.

Attachment: '[https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/36-bof\\_letter\\_oct\\_19\\_07.pdf](https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/36-bof_letter_oct_19_07.pdf)'

Original File Name: BOF letter Oct\_19\_07.pdf

Date and Time Comment Was Submitted: 2007-10-24 12:41:50

No Duplicates.

**Comment 36 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: cathy

Last Name: bleier

Email Address: cathy.bleier@fire.ca.gov

Affiliation: CAL FIRE

Subject: forestry protocols

Comment:

CAL FIRE letter supporting adoption of forestry protocols is attached.

Attachment: '[https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/37-mary\\_nichols\\_-\\_10-24.pdf](https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/37-mary_nichols_-_10-24.pdf)'

Original File Name: Mary Nichols - 10-24.pdf

Date and Time Comment Was Submitted: 2007-10-24 13:06:46

No Duplicates.

**Comment 37 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07) - Non-Reg.**

First Name: Matthew

Last Name: Zinn

Email Address: Non-web submitted comment

Affiliation:

Subject: Shute, Milhay & Weinberger LLP

Comment:

Please see attached.

Attachment: '<https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/39-07103com0001.pdf>'

Original File Name: 07103com0001.pdf

Date and Time Comment Was Submitted: 2007-10-30 11:29:33

No Duplicates.

**Comment 1 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07). (At Hearing)**

First Name: Andrew  
Last Name: Bonde  
Email Address: BondeAndrewJ@johndeere.com  
Affiliation:

Subject: John Deere Re: Climate Action Registry Forestry Protocols as AB 32 Early Action  
Items  
Comment:

Please see attached.

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/41-07103com0002.pdf>

Original File Name: 07103com0002.pdf

Date and Time Comment Was Submitted: 2007-10-31 11:06:26

No Duplicates.

**Comment 2 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07). (At Hearing)**

First Name: John

Last Name: Middlebrook

Email Address: forestlandowners@sbcglobal.net

Affiliation:

Subject: Forest Landowners of California

Comment:

Please see attached.

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/43-07103com0003.pdf>

Original File Name: 07103com0003.pdf

Date and Time Comment Was Submitted: 2007-10-31 11:15:31

No Duplicates.

**Comment 3 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07). (At Hearing)**

First Name: Robert

Last Name: Callahan

Email Address: Non-web submitted comment

Affiliation:

Subject: Cal Chamber

Comment:

Please see attached.

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/44-07103com0004.pdf>

Original File Name: 07103com0004.pdf

Date and Time Comment Was Submitted: 2007-10-31 11:18:46

No Duplicates.

**Comment 4 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07). (At Hearing)**

First Name: Laura

Last Name: McLendon

Email Address: redwoods@sembervirens.org

Affiliation:

Subject: Sembervirens Fund

Comment:

Please see attached.

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/45-07103com0005.pdf>

Original File Name: 07103com0005.pdf

Date and Time Comment Was Submitted: 2007-10-31 11:21:39

No Duplicates.

**Comment 5 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07). (At Hearing)**

First Name: Laurie

Last Name: Wayburn

Email Address: Non-web submitted comment

Affiliation:

Subject: Adopting the Forest Protocols Maintains California's Climate Leadership

Comment:

Please see attached

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/46-07103com0006.pdf>

Original File Name: 07103com0006.pdf

Date and Time Comment Was Submitted: 2007-10-31 12:16:30

No Duplicates.

**Comment 6 for Forestry Greenhouse Gas Accounting Protocols  
(forestghg07). (At Hearing)**

First Name: Eric

Last Name: Holst

Email Address: Non-web submitted comment

Affiliation:

Subject: Environmental Defense Statement of CARB'S proposal to adopt the CCAR Forestry Protocols

Comment:

Please see attached

Attachment: <https://ww2.arb.ca.gov/sites/default/files/BARCU/barcu-attach-old/forestghg07/47-07103com0007.pdf>

Original File Name: 07103com0007.pdf

Date and Time Comment Was Submitted: 2007-10-31 12:19:03

No Duplicates.