



## Accessing the US Carbon Market Through Sustainable Forest Management

Delta Institute & Grossman Forestry Co.

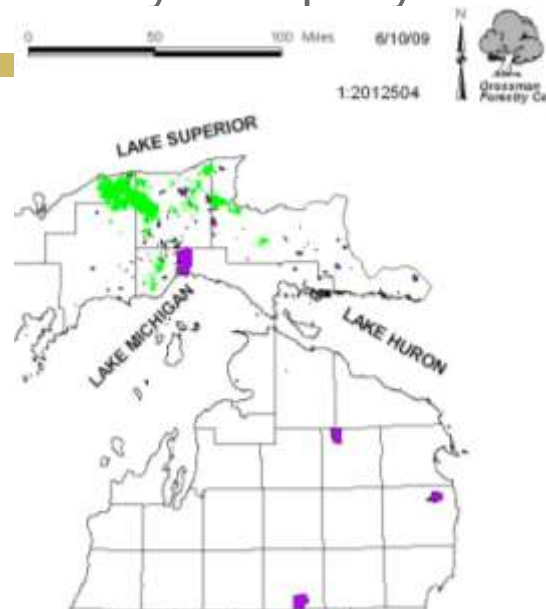
## Grossman Forestry Company

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Grossman Forestry Co.  
Established 1990

Currently manage:  
196,000 Acres – FSC  
Certified.  
109,000 Acres – Tree Farm  
Group Certified to AFF  
standard.

**On the Ground  
Operational  
Management.**



## TAKE HOME MESSAGE

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- Engage practitioners as you move from academic exercise to operations.
  - Identify barriers
  - Use existing operational infrastructure
  - Be:
    - reasonable,
    - practical,
    - verifiable



## TAKE HOME MESSAGE

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- Michigan Forest Carbon Offset & Trading Program
  - Profitable and self sustaining.
  - It is possible to pool small family forest landowners.
  - It is possible to motivate small family forest landowners to invest in forest management planning and forest productivity.
  - Price of carbon needs to be \$2.50+- or more per Ton.
  - Operational efficiencies are critical to success & viability.



## National implications

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- 11 million forestland owners control 56% of the US Forestland.
- Less than 1% of the family forest owners are certified sustainable.
- Increasing investments can lead to increasing sequestration rates.

Size of forest landholdings	Area		Ownerships	
	Acres	Sampling error	Number	Sampling error
Acres	Thousands	Percent	Thousands	Percent
1-9	19,158	6.4	6,220	4.4
10-49	58,585	3.1	2,831	2.2
50-99	41,562	3.2	644	2.3
100-999	97,667	2.5	508	2.1
1,000+	35,003	5.6	19	8.3

USFS report "Family Forest Owners of the US, 2006 – Gen. Tech. Rep. NRS-27.

## MICHIGAN FOREST CARBON OFFSET AND TRADING PROGRAM

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### MANAGED FOREST

- Program Basics
- Project Eligibility
- Enrollment Process



## Program Basics

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- Begun as a joint, pilot project between the Delta Institute and the Michigan Department of Natural Resources (USFS Forest Stewardship Program Funding – 47% to revolving tech. assistance fund).
- Purpose – Establish a framework for quantifying the carbon sequestration benefits from sustainably managed forestlands.
- Begun as demonstration project with 34 landowners in Michigan (48,665 acres).
- Now 122 landowners in 9 states with 134,000 acres = 1.3 million metric tons of offset credits for 2007 through 2010. – scalable



## Project Eligibility

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- Private, non-industrial working forestlands, actively managed for sustainable timber management, wildlife habitat, conservation, etc.
- All forestlands in a single state under same title holder must be enrolled
- Complete forest inventory to establish baseline carbon stock and future carbon sequestration
- Participation in stewardship certification program
  - American Tree Farm System (PEFC)
  - Sustainable Forestry Initiative (PEFC)
  - Forest Stewardship Council
- Forest Stewardship Plan or other sustainable forest management plan
- Letter of intent to maintain forestland in certification program for at least 15 years
- Annual update to account for changes in carbon stocks
- Annual verification



## Enrollment Process

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1. Complete enrollment application and contract
2. Perform forest inventory to establish carbon baseline
  - Emphasis on measuring total growth
  - Performed by qualified forester in the dormant season
  - Landowners bears the cost
3. Delta enters inventory data into USFS FVS model to establish carbon baseline and gross sequestration
  - Landowner earns credits for above-ground live, below-ground live and possibly, long-lived wood products
4. Landowner submits annual update on activities on the ground.
  - Foresters completes “true up” inventory for areas effected by silvicultural activities or catastrophic events.
  - Result: Net Annual Carbon Sequestration



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5. Verification
  - Delta hires independent, 3<sup>rd</sup> party verifier to confirm and validates baseline amount and annual net carbon sequestration
6. Verifier submits reports to CCX
  - CCX removes reserve pool credits
    - **Annual, 20% deduction** to reduce impact of catastrophic events
    - At end of contract period, unused credits are released and sold on market
  - CCX **discounts** the enrollment pool for sampling error and variance
  - End Result: Salable carbon credits
7. Delta sells credits on the Chicago Climate Exchange trading platform with net profits returned to project owners



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- Contractual Terms and Conditions
- Program Costs
- Program Revenue



## Contractual Terms and Conditions

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- Baseline
  - Begins with year of inventory
  - Reserve Pool
    - CCX requires that 20% of credits each year be placed in a reserve pool to protect against catastrophic events
    - In there is a catastrophic event, liability is limited to the credits in the reserve pool. Landowners do not have to buy credits to account for catastrophic losses
- Timber harvesting in accordance with the forest management plan.
  - CCX does not permit reserve pool credits to be used for timber harvesting stock reductions.
  - If landowner has an carbon deficit due to timber harvesting, future increases are applied to the deficit before any credits can be sold.

## Program Costs

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### 1. Upfront Costs

- Initial Forest Inventory
  - Michigan landowners pay an average of \$1-10 per acre
- Cost to develop sustainable forest management plan
- Sustainability certification



### 2. Back-end Fees Deducted from Sale of Credits

- Delta Aggregation fee – 10% of gross revenue
- CCX registration and trading fee - \$0.20 per ton
- Verification fee (periodically – usually every other year)
  - Estimate \$5,000 – 10,000 for ENTIRE enrollment pool
  - Each project owner shares costs on a pro rata basis

## Michigan summary

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### □ Eligibility:

- Forest Inventory
- Management plan covers 15-20 year planning horizon
  - Most landowners submit MI forest stewardship plans.

### □ Third party Certification

- SFI, FSC, or Tree Farm Group



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- Technical Assistance
  - ▣ Landowners can apply for technical assistance funds to offset the initial cost of forest inventory “REVOLVING”
  - ▣ TA funds limited to \$300 plus \$1.00/acre - \$2000 MAX
  - ▣ Landowners **MUST** have a MI forest stewardship plan to receive TA funds.



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- Landowners **COMMIT** to implementing their forest management plan, **including timber harvesting**.
  - ▣ Landowners sell net carbon storage (growth minus mortality minus harvest minus any unanticipated events).
  - ▣ Good planning is **ESSENTIAL** – not all ownership are good candidates.

#### **Issues**

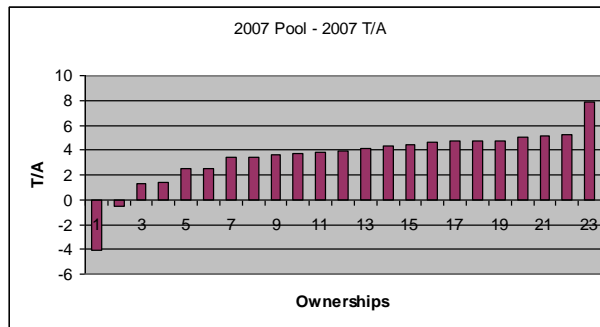
- Soil Productivity
- Deferred management
  - High mortality
- Commitment to certified sustainable management



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## RESULTS

- Initial pilot project enrolled 34 landowners in Northern Michigan with 48,665 acres.
  - Average for 48,665 acres = 3.55 MTCO<sub>2</sub>e/Acre in 2007.
  - Range from -4.1 to 7.9 for 2007 pool during 2007.



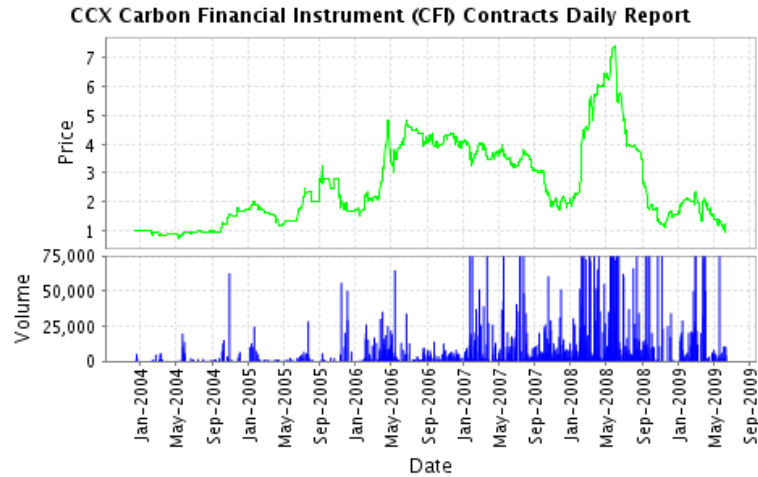
## PROGRAM Results

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	Pilot ('07)	2 <sup>nd</sup> pool ('08)	3 <sup>rd</sup> pool ('09) *partial	TOTALS
# landowners	34	50	22	<b>106</b>
Acres	48,665	49,780	31,361	<b>129,806</b>
2007 net sequestration	172,900 MTCO <sub>2</sub> e	16,200 MTCO <sub>2</sub> e		
2008 net sequestration	106,500 MTCO <sub>2</sub> e	226,900 MTCO <sub>2</sub> e	5,846 MTCO <sub>2</sub> e	
2009 net sequestration	179,800 MTCO <sub>2</sub> e	243,500 MTCO <sub>2</sub> e	128,736 MTCO <sub>2</sub> e	
2010 net sequestration	173,000 MTCO <sub>2</sub> e	231,000 MTCO <sub>2</sub> e	132,530 MTCO <sub>2</sub> e	
<b>Total</b>	<b>632,200 MTCO<sub>2</sub>e</b>	<b>717,600 MTCO<sub>2</sub>e</b>	<b>267,113 MTCO<sub>2</sub>e</b>	<b>1,616,913 MTCO<sub>2</sub>e</b>

## Daily price graph

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## PROGRAM REVENUE

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2007 pool -- 2007 Growth

- ▣ Net sequestration/acre = 3.55
- ▣ Net sequestration = 172,900
- ▣ Salable tons = 138,330
- ▣ Salable tons/acre = 2.84
- ▣ Net Revenue = \$389,097
- ▣ Net/Ton = \$2.81/Ton
- ▣ Net/Acre = \$8.00/acre

Note: For 1<sup>st</sup> year of pilot net is net of baseline cruise and establishment.



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## Contact Information

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