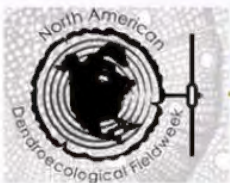


DendroArchaeology NADEF – 2015

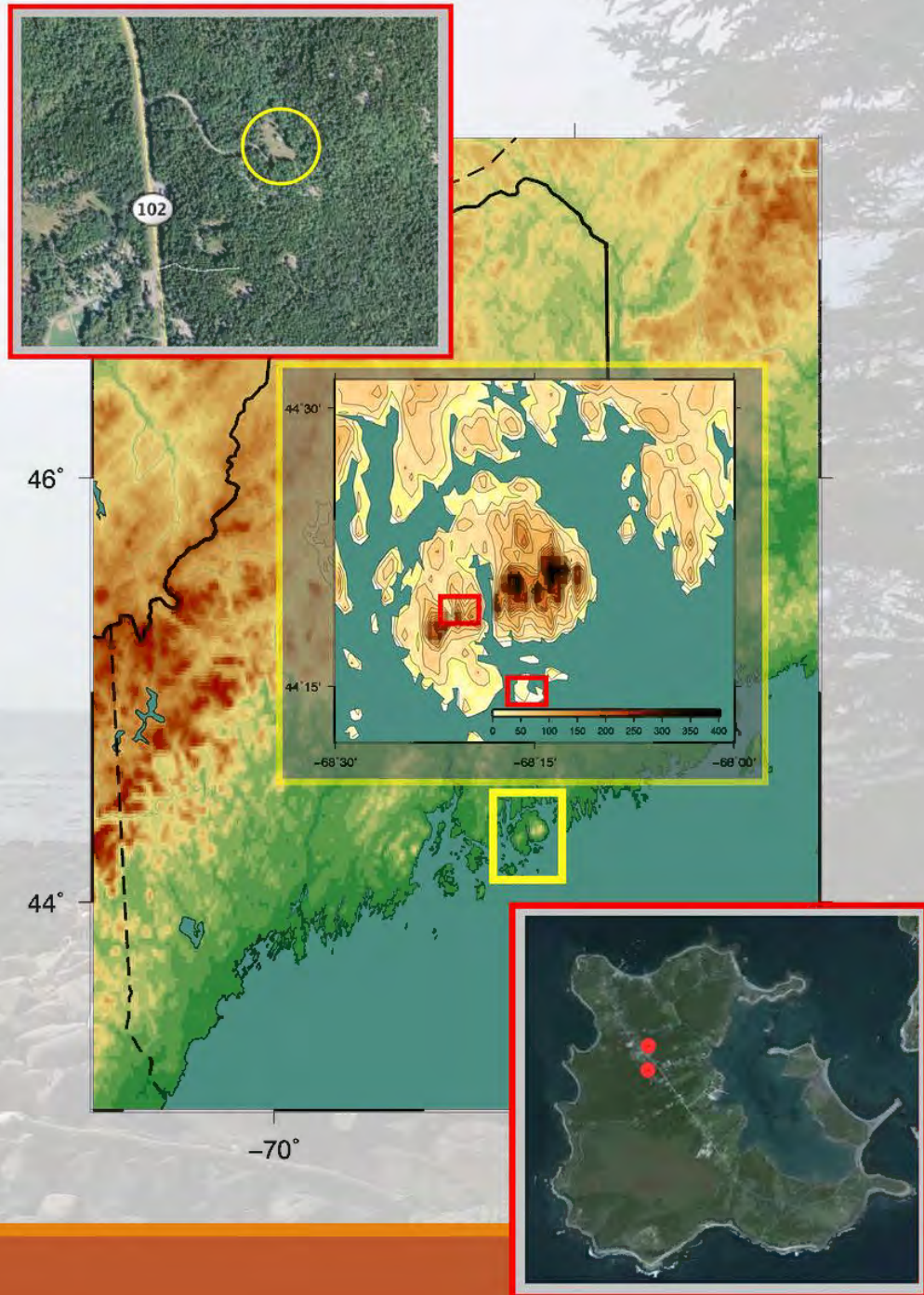
Gary Macadaeg
Meghan Ladolcetta
Jeffrey Benjamin
Bill Flynt
*introducing,
Paul Krusic*

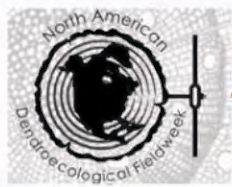


Locations

Three houses

- Two on Great Cranberry Island
- One on Mount Desert Island in Acadia National Park

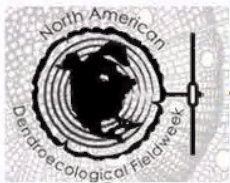




#HistoPrestoDendro'sBesto







Introduction

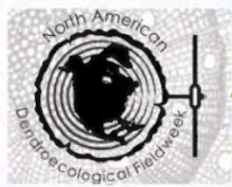
Vernacular architecture

Acadia National Park

- Preservation and interpretation

Verification of historic records

Dendro's utility in answering above

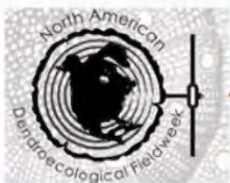


Great Cranberry Island

Rice House

Dowling-Meyers House

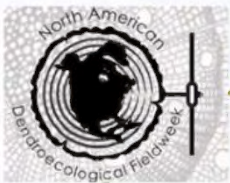




Mount Desert Island

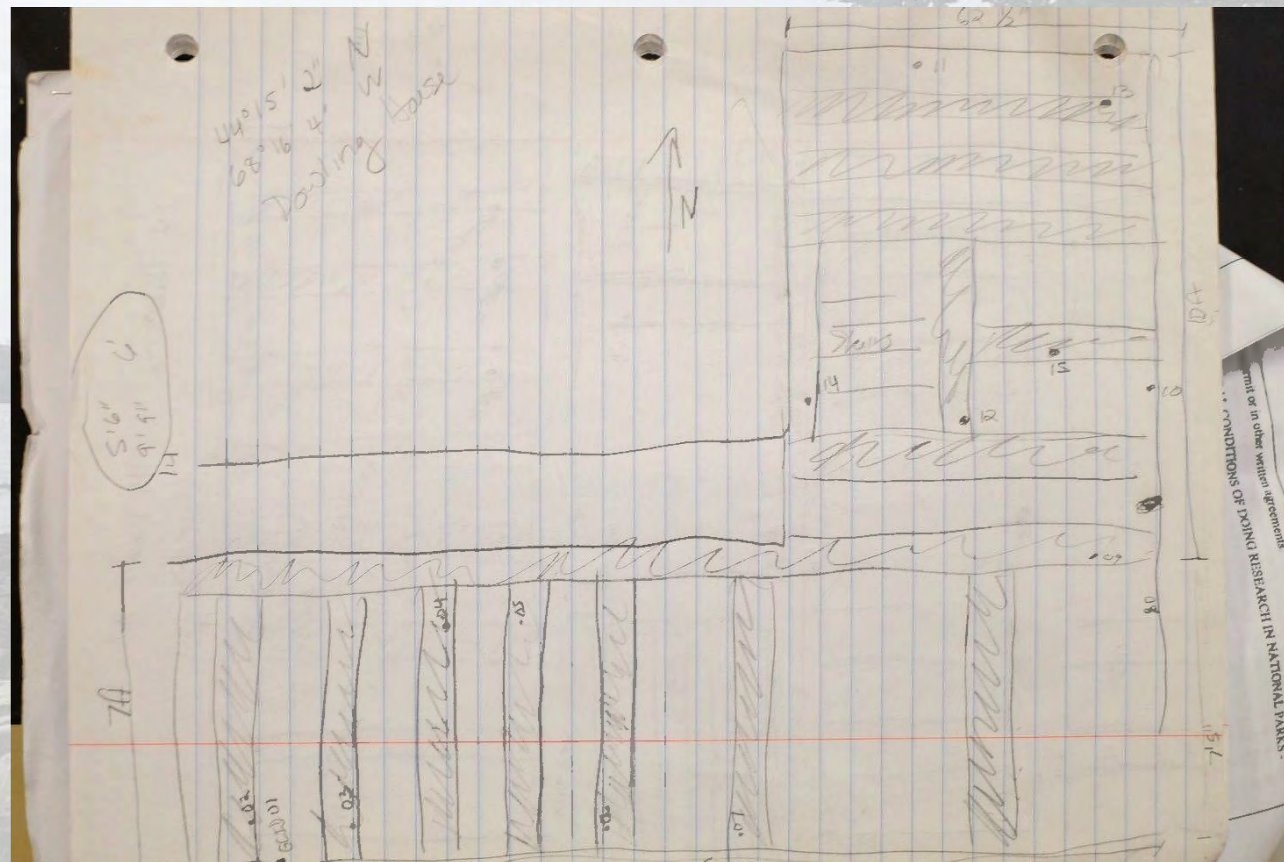
Carroll House





Methods

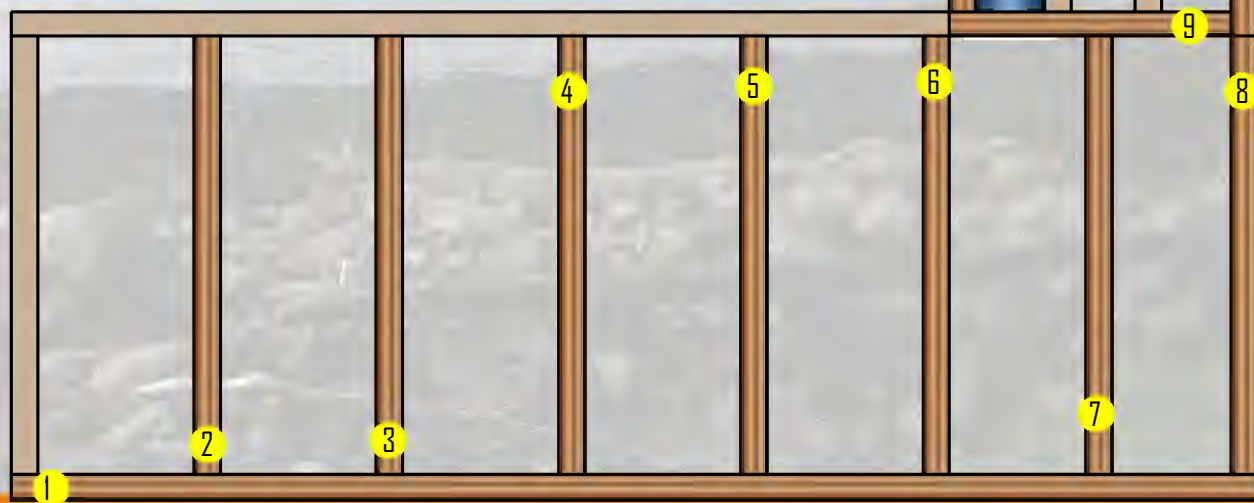
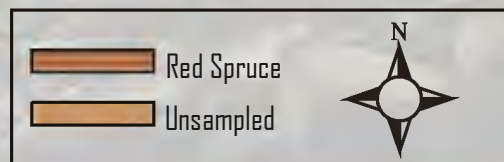
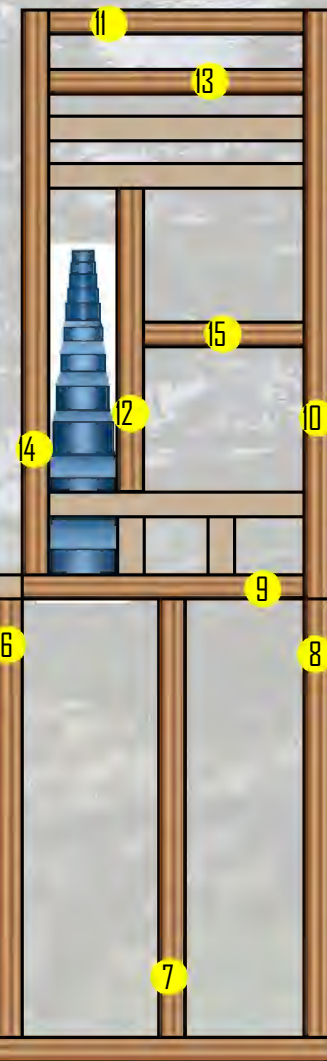
Mapping





Dowling-Meyers House

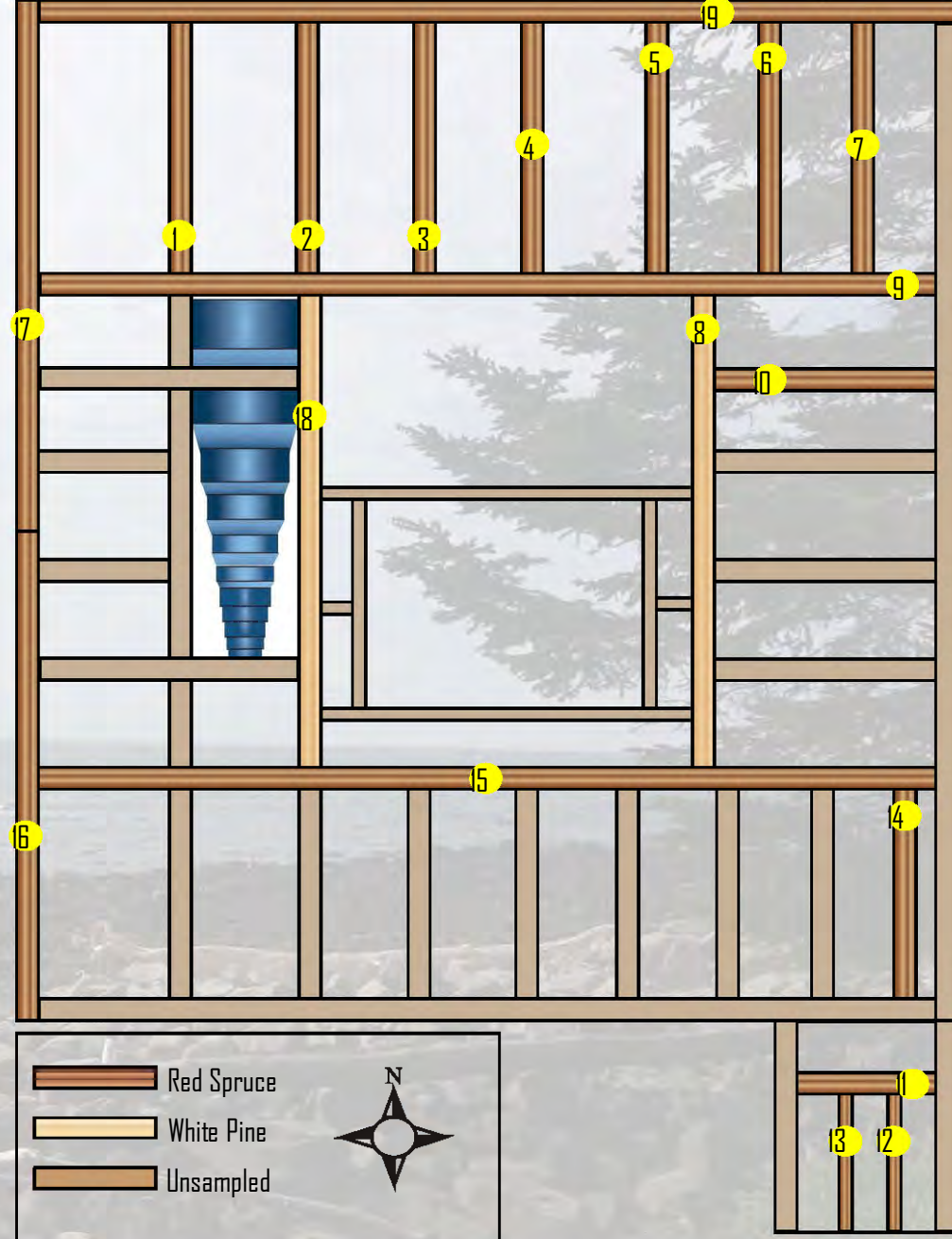
Dowling House			
Sample ID	Location	Species	Wane
GCID-01	south sill	PCRU	Y
GCID-02	south bay, 1 st joist from west wall	PCRU	Y
GCID-03	south bay, 2 nd joist from west wall	PCRU	Y
GCID-04	south bay, 3 rd joist from west wall	PCRU	Y
GCID-05	south bay, 4 th joist from west wall	PCRU	Y
GCID-06	south bay, 5 th joist from west wall	PCRU	Y
GCID-07	south bay, 6 th joist from west wall	PCRU	Y
GCID-08	south bay, east sill	PCRU	Y
GCID-09	south bay, e-w girt, between n & s bay	PCRU	Y
GCID-10	north bay, east sill	PCRU	Y
GCID-11	north bay, north sill	PCRU	Y
GCID-12	north bay, e-w girt at stairway	PCRU	Y
GCID-13	north bay, 1 st joist south of north sill	PCRU	Y
GCID-14	north bay, west girt	PCRU	Y
GCID-15	north bay, 4 th e-w joist from north sill	PCRU	Y





Rice House

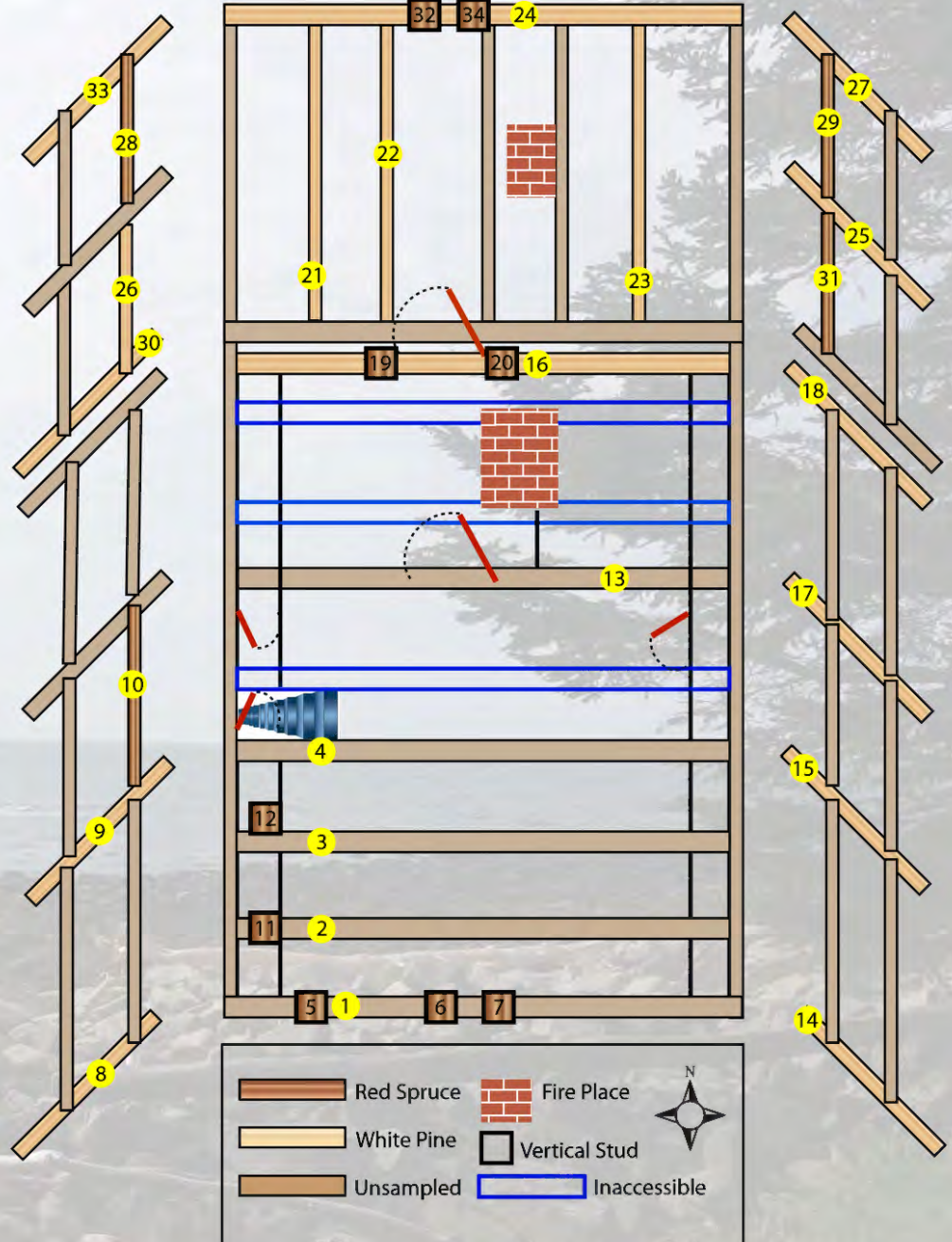
Rice House			
Sample ID	Location	Species	Wane
GCIR-01	north bay, 1 st joist from west wall	PCRU	Y
GCIR-02	north bay, 2 nd joist from west wall	PCRU	Y
GCIR-03	north bay, 3 rd joist from west wall	PCRU	Y
GCIR-04	north bay, 4 th joist from west wall	PCRU	Y
GCIR-05	north bay, 5 th joist from west wall	PCRU	Y
GCIR-06	north bay, 6 th joist from west wall	PCRU	Y
GCIR-07	north bay, 7 th joist from west wall	PCRU	Y
GCIR-08	central bay, n-s chimney girt, east, reuse	PIST	Y
GCIR-09	North e-w chimney girt	PCRU	Y
GCIR-10	chimney bay east bay joist, 1 st south of - 09	PCRU	Y
GCIR-11	south ell, north east/west sill	PCRU	Y
GCIR-12	south ell, east joist	PCRU	Y
GCIR-13	south ell, west joist	PCRU	Y
GCIR-14	south bay, east inner sill	PCRU	Y
GCIR-15	south e-w chimney girt	PCRU	Y
GCIR-16	south bay, west inner sill	PCRU	N
GCIR-17	chimney bay, west inner sill	PCRU	Y
GCIR-18	central bay, n-s chimney girt, west, re-use?	PIST	Y
GCIR-19	north sill	PCRU	Y

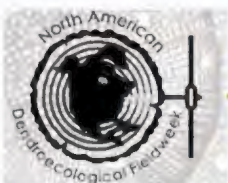




Carroll House

Carroll House			
Sample ID	Location	Species	Wane
Phase 1			
MDIC-01	south wall tie girt	PIST	Y
MDIC-02	1 st joist north of south gabled end	PIST	Y
MDIC-03	2 nd joist north of south gabled end	PIST	Y
MDIC-04	3 rd joist north of south gabled end	PIST	Y
MDIC-05	south gable stud, sw corner of room	PCRU	Y
MDIC-06	south gable stud, west side of window	PCRU	Y
MDIC-07	south gable stud, east side of window	PCRU	Y
MDIC-08	south west gable rafter	PIST	N
MDIC-09	west side, 1 st rafter north of south gable	PIST	N
MDIC-10	west side, knee wall purlin	PCRU	Y
MDIC-11	west side, 2 nd knee wall stud from south gable	PCRU	Y
MDIC-12	west side, knee wall stud north of MDIC-11	PCRU	Y
MDIC-13	south chimney bay girt	PIST	Y
MDIC-14	south east gable rafter	PIST	Y
MDIC-15	east side, 1 st rafter north of south gable	PIST	Y
MDIC-16	north end tie girt	PIST	?
MDIC-17	east side, 2 nd rafter from south gable	PIST	Y
MDIC-18	northeast gable rafter	PIST	Y
MDIC-19	north gabled door, west stud	PCRU	Y
MDIC-20	north gabled door, east stud	PCRU	Y
PHASE 2			
MDIC-21	1 st joist from west eave	PIST	Y
MDIC-22	2 nd joist from west eave	PIST	Y
MDIC-23	1 st joist from east eave	PIST	Y
MDIC-24	north end tie girt	PIST	Y
MDIC-25	east side, middle rafter	PIST	Y
MDIC-26	west side, 1 st purlin from eave – south bay	PIST	Y
MDIC-27	east side, north rafter	PIST	Y
MDIC-28	west side, 1 st purlin from eave- north bay	PCRU	Y
MDIC-29	east side, 1 st purlin from eave – north bay	PCRU	Y
MDIC-30	west side, south rafter	PIST	Y
MDIC-31	east side, 1 st purlin from eave, south bay	PCRU	Y
MDIC-32	north gable end window west stud	PCRU	Y
MDIC-33	west side, north rafter	PIST	Y
MDIC-34	north gable end window east stud	PCRU	Y





Coring

Electric drills with
two custom bits

Numbered, noted, stored





Preparation

Glue to core mounts

Progressive sanding

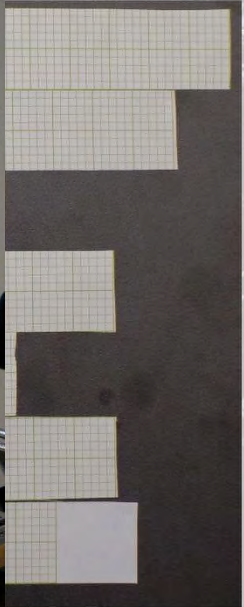
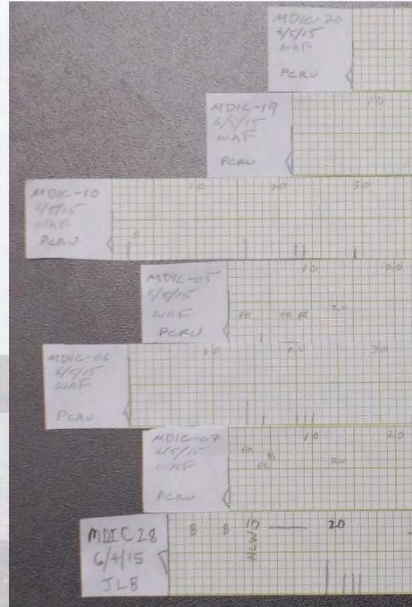


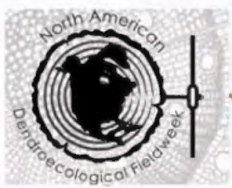


Measurement

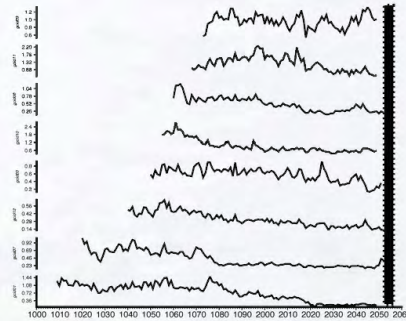
Skeleton Plotting

Measuring

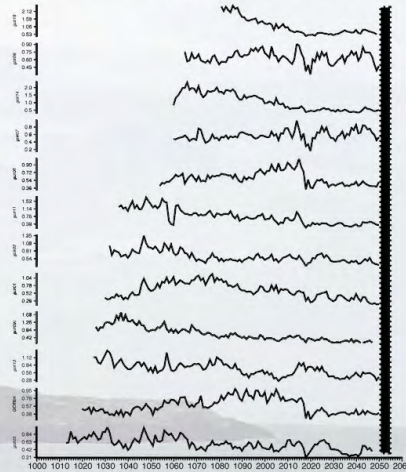




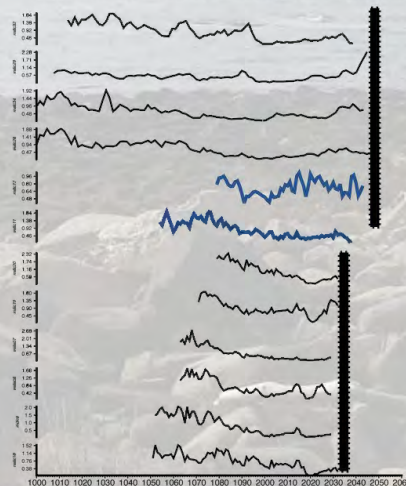
Relative Dating



Dowling-Meyers House, GCI



Rice House, GCI

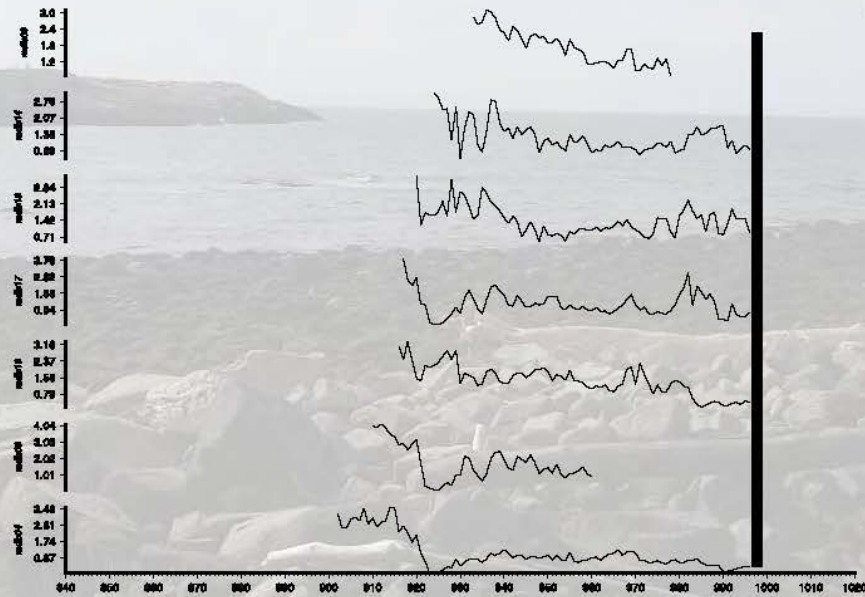
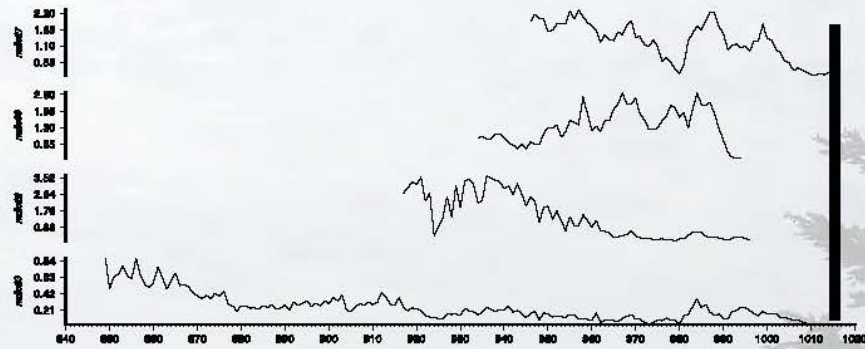


Carroll Farmstead, MDI

Spruce Samples



Carroll Farmstead, MDI Pine Samples

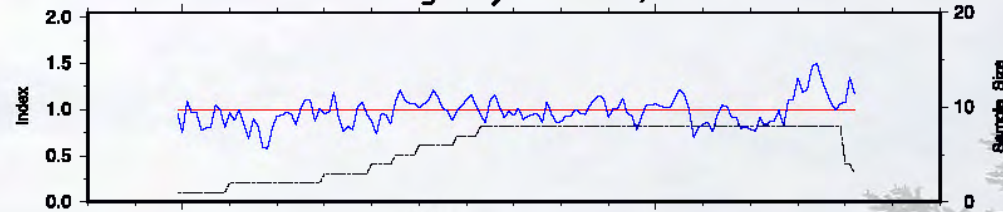




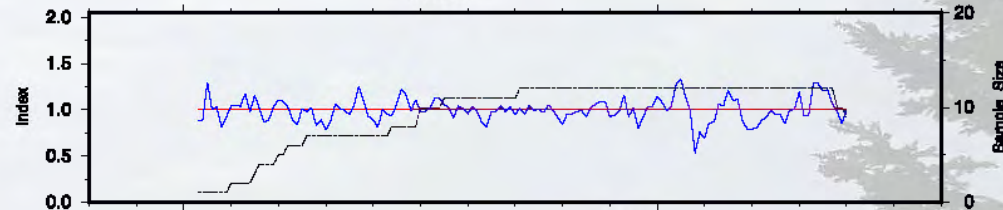
Chronologies

Spruce Samples

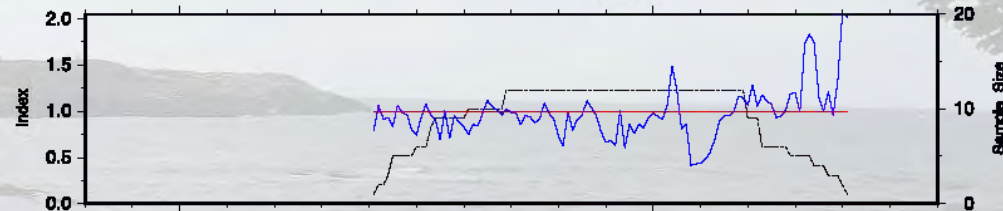
Three site-house spruce chronologies, with relative dating.
Dowling-Meyers House, GCI



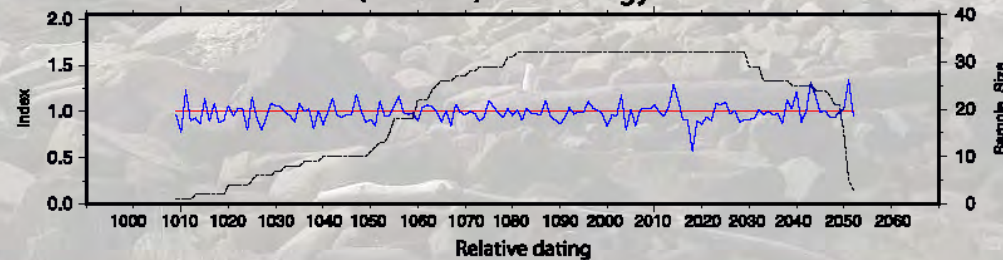
Rice House, GCI

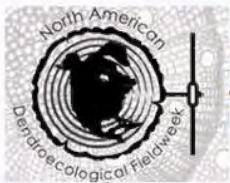


Carroll Farmstead, MDI

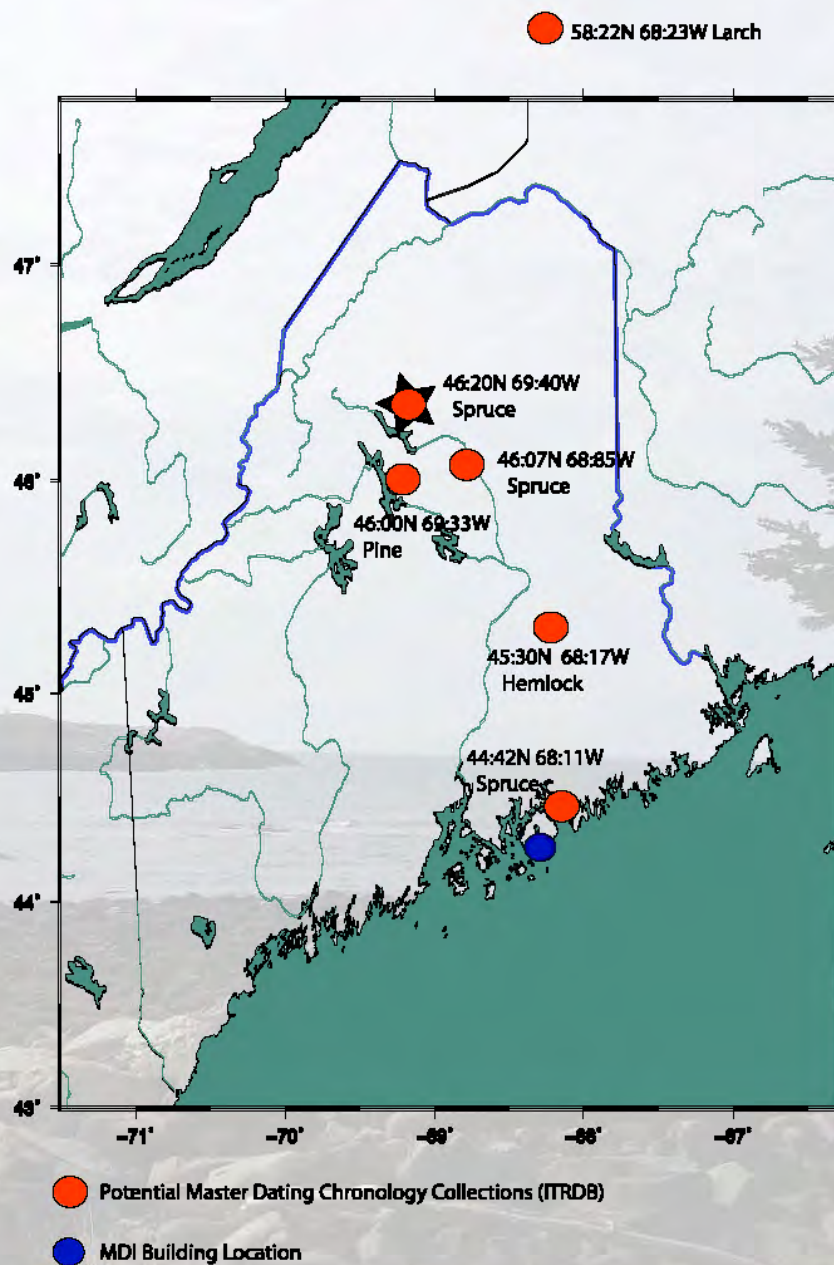


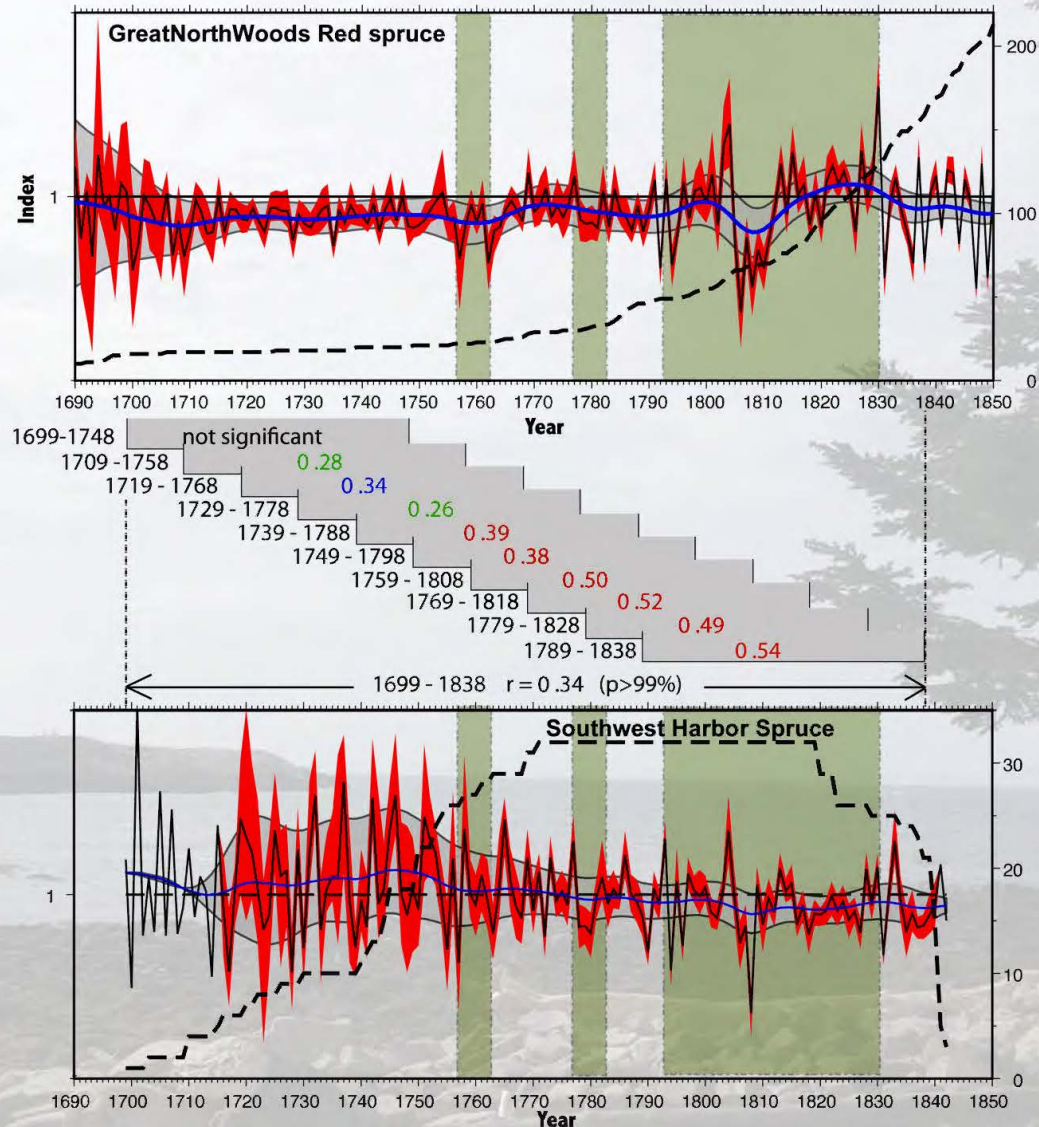
MDI Floating Composite Spruce
(residual) Chronology





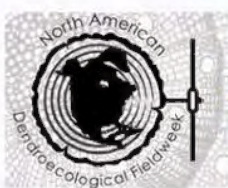
Calendar Dating





b) Sliding segment correlations (50 yr. seg. 10 yr. overlap) between PIRU_res (panel a) and Southwest Harbor archeological spruce timber: residual chronology (pane b). Segment correlations greater than 0.38 are significant at the 99% level, > 0.34 significant at the 98%, > 0.26 significant at the 90% level.

Fraver, S., R.S. Seymour, J.H. Speer, and A. White (2007), Dendrochronological reconstruction of spruce budworm outbreaks in northern Maine, USA. *Can J. Res.* 37:523-529 doi:10.1139/X06-251



Rice House

Rice House					
Sample ID	Location	Species	Wane	FYOG	LYOG
GCIR-01	north bay, 1 st joist from west wall	PCRU	Y	1720	1840
GCIR-02	north bay, 2 nd joist from west wall	PCRU	Y	1722	1840
GCIR-03	north bay, 3 rd joist from west wall	PCRU	Y	1703	1837
GCIR-04	north bay, 4 th joist from west wall	PCRU	Y	1710	1840
GCIR-05	north bay, 5 th joist from west wall	PCRU	Y	1744	1840
GCIR-06	north bay, 6 th joist from west wall	PCRU	Y	1755	1840
GCIR-07	north bay, 7 th joist from west wall	PCRU	Y	1750	1840
GCIR-08	central bay, n-s chimney girt, east, reuse	PIST	Y		
GCIR-09	North e-w chimney girt	PCRU	Y	1716	1837
GCIR-10	chimney bay east bay joist, 1 st south of - 09	PCRU	Y		
GCIR-11	south ell, north east/west sill	PCRU	Y	1726	1840
GCIR-12	south ell, east joist	PCRU	Y		
GCIR-13	south ell, west joist	PCRU	Y	1715	1840
GCIR-14	south bay, east inner sill	PCRU	Y	1750	1840
GCIR-15	south e-w chimney girt	PCRU	Y		
GCIR-16	south bay, west inner sill	PCRU	N	1771	1839
GCIR-17	chimney bay, west inner sill	PCRU	Y		
GCIR-18	central bay, n-s chimney girt, west, re-use?	PIST	Y		
GCIR-19	north sill	PCRU	Y		



Dowling-Meyers House

Dowling-Meyer House					
Sample ID	Location	Species	Wane	FYOG	LYOG
GCID-01	south sill	PCRU	Y	1699	1839
GCID-02	south bay, 1 st joist from west wall	PCRU	Y		
GCID-03	south bay, 2 nd joist from west wall	PCRU	Y	1740	1841
GCID-04	south bay, 3 rd joist from west wall	PCRU	Y		
GCID-05	south bay, 4 th joist from west wall	PCRU	Y		
GCID-06	south bay, 5 th joist from west wall	PCRU	Y	1750	1842
GCID-07	south bay, 6 th joist from west wall	PCRU	Y	1710	1842
GCID-08	south bay, east sill	PCRU	Y		
GCID-09	south bay, e-w girt, between n & s bay	PCRU	Y	1763	1839
GCID-10	north bay, east sill	PCRU	Y	1745	1839
GCID-11	north bay, north sill	PCRU	Y	1758	1839
GCID-12	north bay, e-w girt at stairway	PCRU	Y	1730	1842
GCID-13	north bay, 1 st joist south of north sill	PCRU	Y		
GCID-14	north bay, west girt	PCRU	Y		
GCID-15	north bay, 4 th e-w joist from north sill	PCRU	Y		



Carroll House

Carroll House					
Sample ID	Location	Species	Wane	FYOG	LYOG
Phase 1					
MDIC-01	south wall tie girt	PIST	Y		
MDIC-02	1 st joist north of south gabled end	PIST	Y		
MDIC-03	2 nd joist north of south gabled end	PIST	Y		
MDIC-21	1 st joist from west eave	PIST	Y		
MDIC-04	3 rd joist north of south gabled end	PIST	Y		
MDIC-22	2 nd joist from west eave	PIST	Y		
MDIC-05	south gable stud, SW corner of room	PCRU	1753	1819	
MDIC-06	south joist from east eave	PCRU	1742	1819	
MDIC-07	south gable stud, east side of window	PCRU	1753	1819	
MDIC-08	south end tie girt	PIST	Y		
MDIC-09	east side, middle rafter	PIST	Y		
MDIC-26	west side, 1 st rafter north of south gable	PIST	Y		
MDIC-10	west side, 1 st purlin from eave – south bay	PCRU	1741	1822	
MDIC-27	west side, knee wall purlin	PCRU	1744	1828	
MDIC-11	west side, 2 nd knee wall stud from south	PCRU	1744	1828	
MDIC-28	west side, 1 st purlin from eave- north bay	PCRU	Y	1745	1841
MDIC-12	west side, knee wall stud north of MDIC-11	PCRU	1760	1830	1840
MDIC-29	east side, 1 st purlin from eave – north bay	PCRU	Y		
MDIC-30	west side, south rafter	PIST	Y		
MDIC-13	south chimney bay girt	PIST	Y		
MDIC-31	east side, 1 st purlin from eave, south bay	PCRU	Y		
MDIC-14	south east gable rafter	PIST	Y		
MDIC-32	north gable end window west stud	PCRU	Y	1754	1836
MDIC-15	east side, 1 st rafter north of south gable	PIST	Y		
MDIC-33	west side, north rafter	PIST	Y		
MDIC-16	north end tie girt	PIST	Y		
MDIC-34	north gable end window east stud	PCRU	Y	1745	1839
MDIC-17	north gable end window east stud	PIST	Y		
MDIC-18	northeast gable rafter	PIST	Y		
MDIC-19	north gabled door, west stud	PCRU	Y	1761	1822
MDIC-20	north gabled door, east stud	PCRU	Y	1769	1822

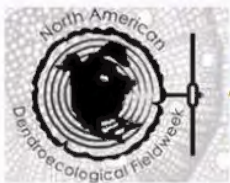


Cutting Dates

- The Rice House
 - 1837-1840
- The Dowling-Meyers House
 - 1839-1842
- The Carroll House
 - Phase I: 1819-1822
 - Phase II: 1836-1841

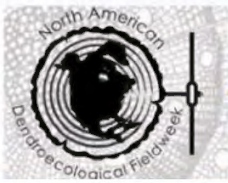


MDIC-20 (PCRU), felling date 1822



Logging and Deforestation





Further Research



443 Cranberry Road (Lim/Red House) (Photo by Grulich 2014)



XX Cranberry Lane (Freeman/Ladd House 2014)



471 Cranberry Road (Harlan House) (Photo by Grulich 2014)



80 The Lane (Liebow House) (Photo by Grulich 2014)



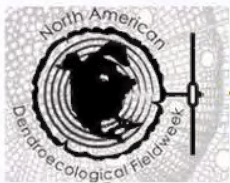
609 Cranberry Road (Espinoza/Bancroft House) (Photo by Grulich 2014)



26 Wild Island Way (Selim/Polly Storey House) (Photo by Grulich 2014)



189 Cranberry Road (Parsonage House before remodeling) Photo by Jeri Spurling 2013



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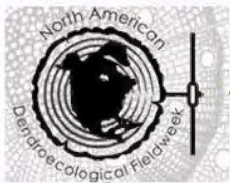
Holmes, R.L. 1983. Computer-Assisted Quality Control in Tree Ring Dating and Measurement. *Tree-ring Bulletin*, 4:69-78.

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Wilson, Jeremy S. 2005. Nineteenth Century Lumber Surveys for Bangor, Maine: Implications for Pre-European Settlement Forest Characteristics in Northern and Eastern Maine. *Journal of Forestry*, July/August 2005: 218-223.



Acknowledgements

Our special thanks to:

The National Science Foundation

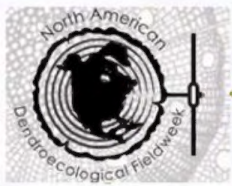
Acadia National Park

The Schoodic Institute (and their wonderful staff with immeasurable patience)

Anne Grulich & Jesse ???

Rebecca Cole-Will

and *Mia*, the ferry girl



DendroArchaeological surprise!

