

Wildland Forest Soil Carbon Management

Randy L. Davis

2011 NCER Conference

“Put the Black Back in Soils”

Larry Schweiger, National Wildlife Federation

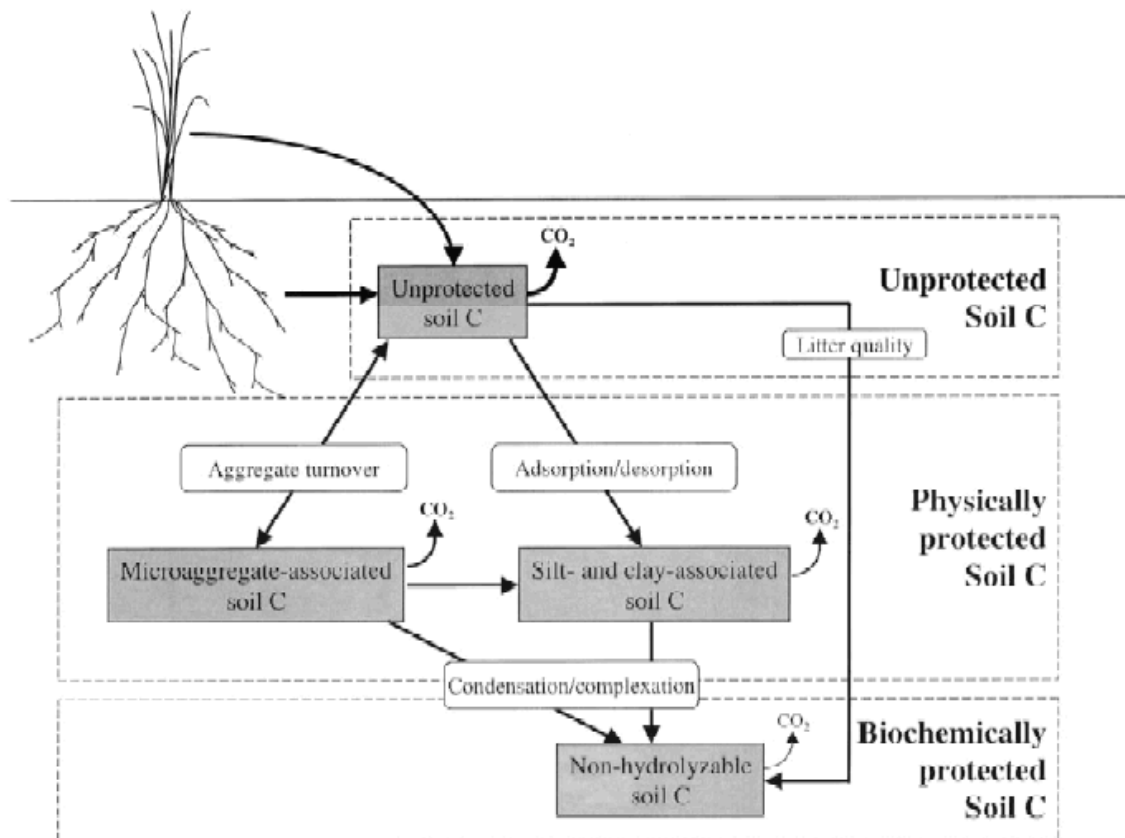
Carbon storage in soils is complex

Forests store carbon in different Ways

Forest management influences carbon storage

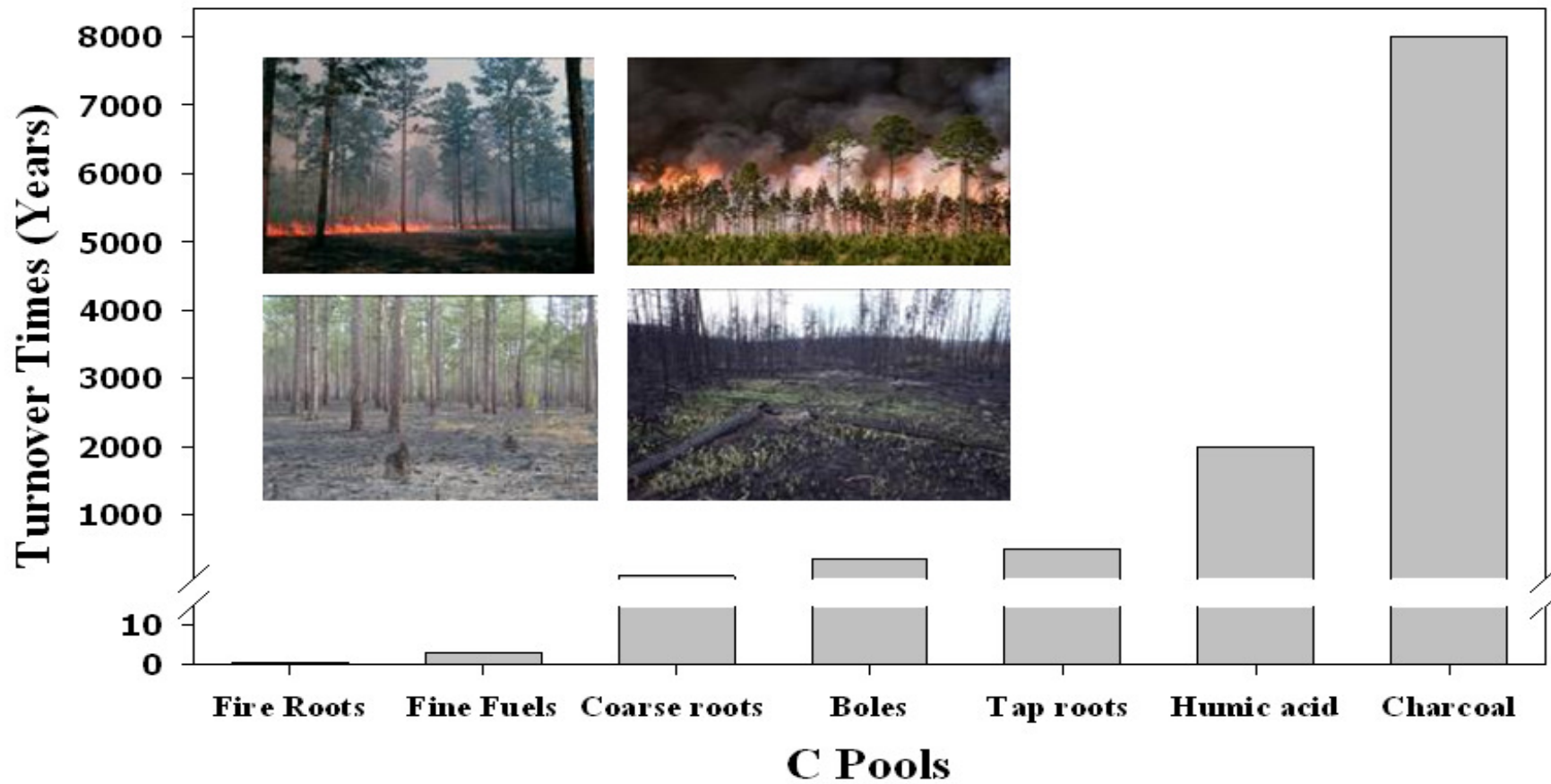
Soil Carbon Storage Dynamics

Six, et al 2002



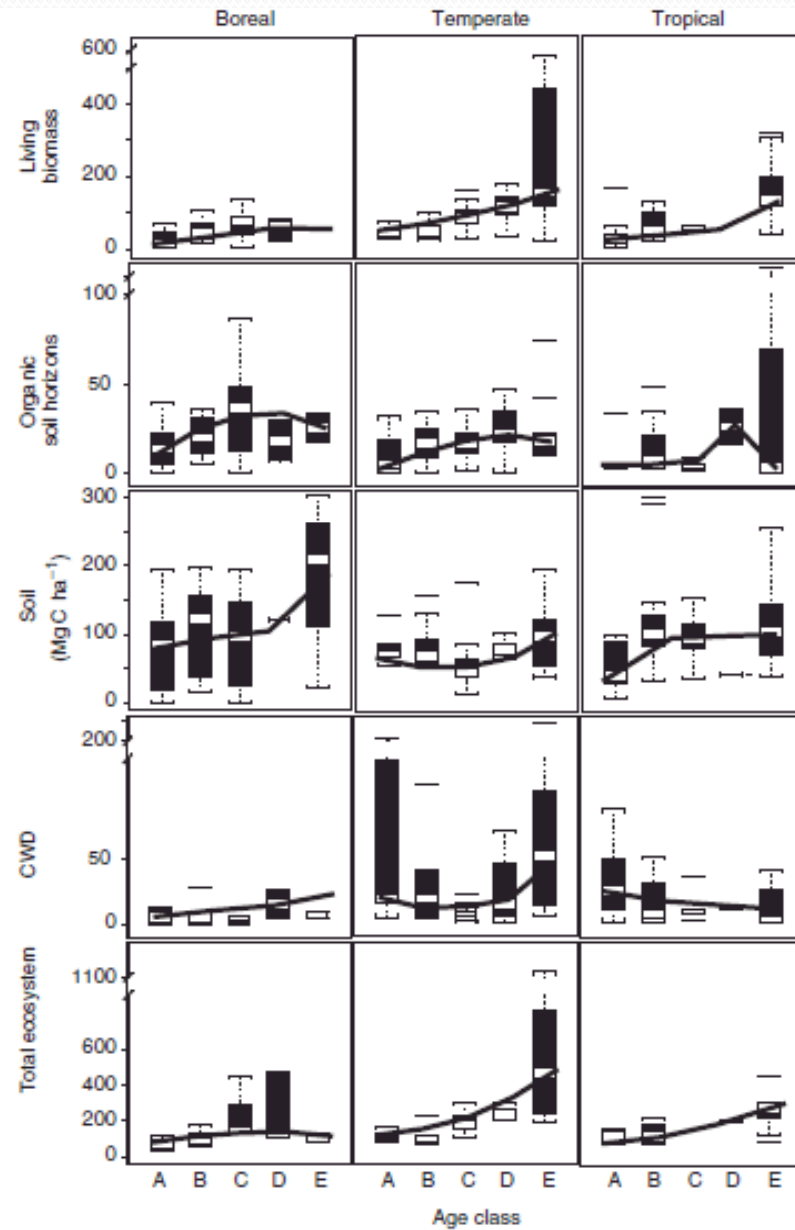
Organic matter has different rates of decomposition in soil,

Deluca and Aplet 2008, Mitchell, et al, 1999



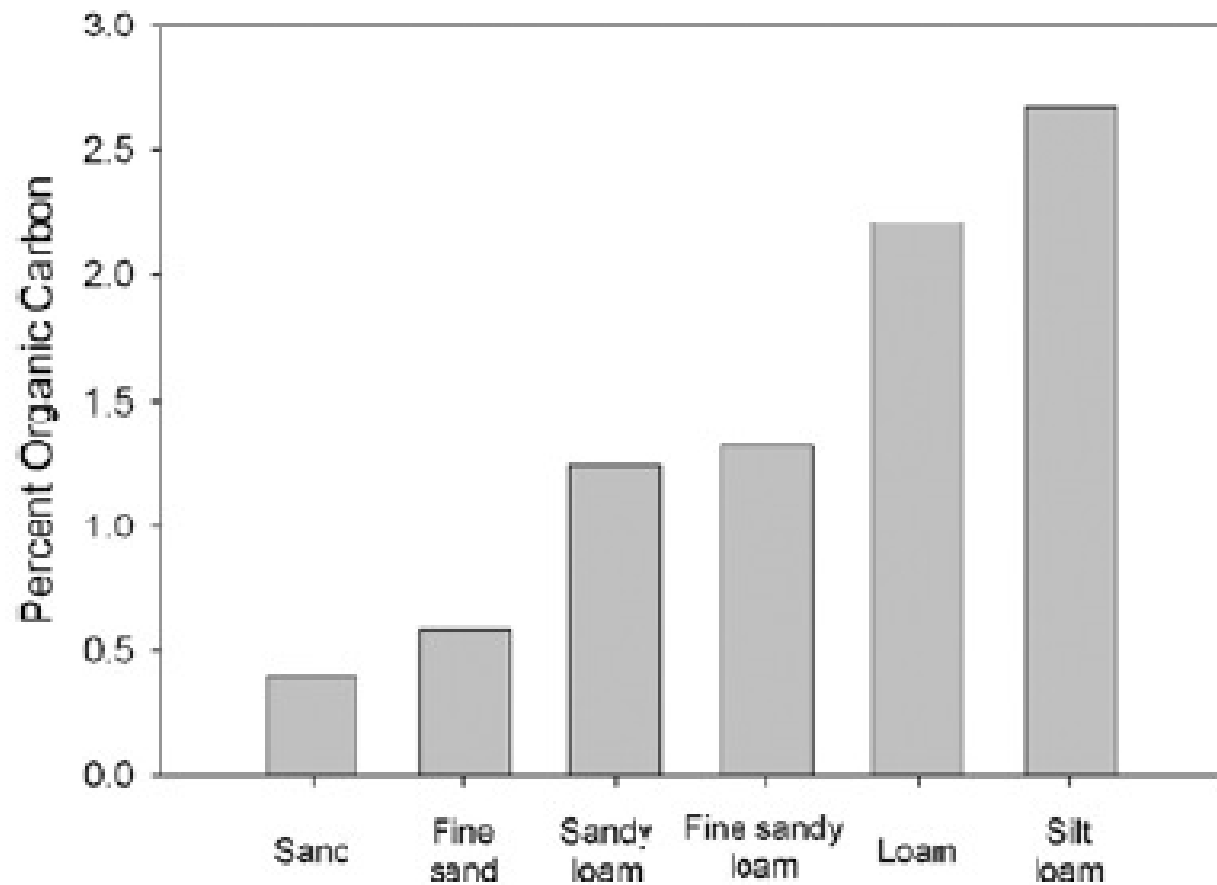
Ecosystems Store Carbon in different ways

Pregitzer and Euskirchen, 2004



Soil texture affects the amount of carbon that can be stored

Jenny, 1936



Forest Management Affects Carbon Storage

Heath, et al 2003

Activity	Area (Mha)	Rate of Carbon Sequestration in Soil (kg/ha/year)			Quantity of Carbon Sequestered (Mt C/year)		
		Low	Medium	High	Low	Medium	High
Regeneration	59.7	70	223	419	4.2	13.3	25
Fertilization	20.0	875	1749	3061	17.5	35.0	61.2
Mine Reclamation	1.0	89	487	1295	0.1	0.5	1.3
More partial cuts/less clearcuts	1.5	0	448	1195	0	0.7	1.8
Lengthen rotations	0.7	0	448	1195	0	0.3	0.9
Soil erosion reduction	21.0	9.5	16.7	23.8	0.2	0.35	0.5
Mange to increase soil Carbon	125	20	50	100	2.5	6.3	12.5
Total Forest Management					24.5	56.4	103.2

Summary:

Carbon storage in soils is complex

Forests store carbon in different ways

Forest management influences carbon storage

Questions?