

# Estimation of carbon fluxes from coarse woody debris (CWD) in Pinus Koraiensis stands in the Russian Far East

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Effects of the typhoon Lionrock in the south of the Russian Far East

Sikhote-Alin Nature Reserve: The total windthrow area was 40,000 ha (out of 400,000 ha), i.e. 10%



1. Determination of specific emissions from the surface of coarse woody debris

2015, 2016, 2017: 3 species, 45 fragments, 12 measurements/season

2. Determination of CWD stocks on sample sites by species and decomposition stage

2017, 2018 5+9 sample sites

3. Determination of CWD density by species and decomposition stage

2018 30 fragments, 3 replications

Estimation of total carbon emissions from CWD per ha

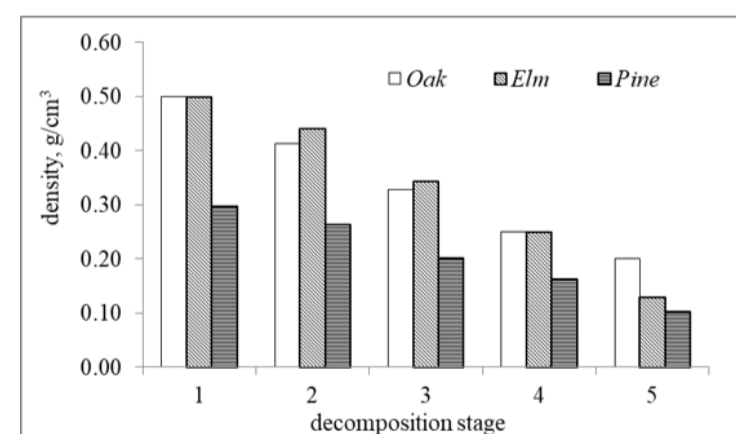
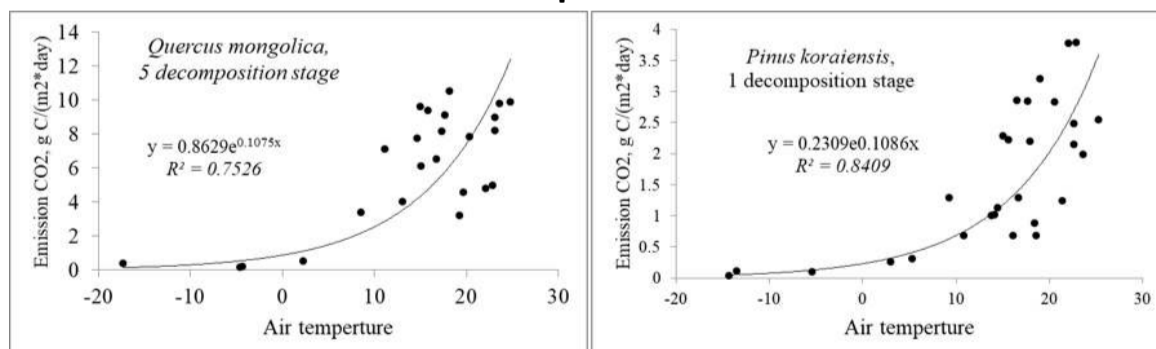
Analysis of deadwood and carbon stocks as well as the surface area of CWD according to species, decomposition stage, fragment size

Результаты

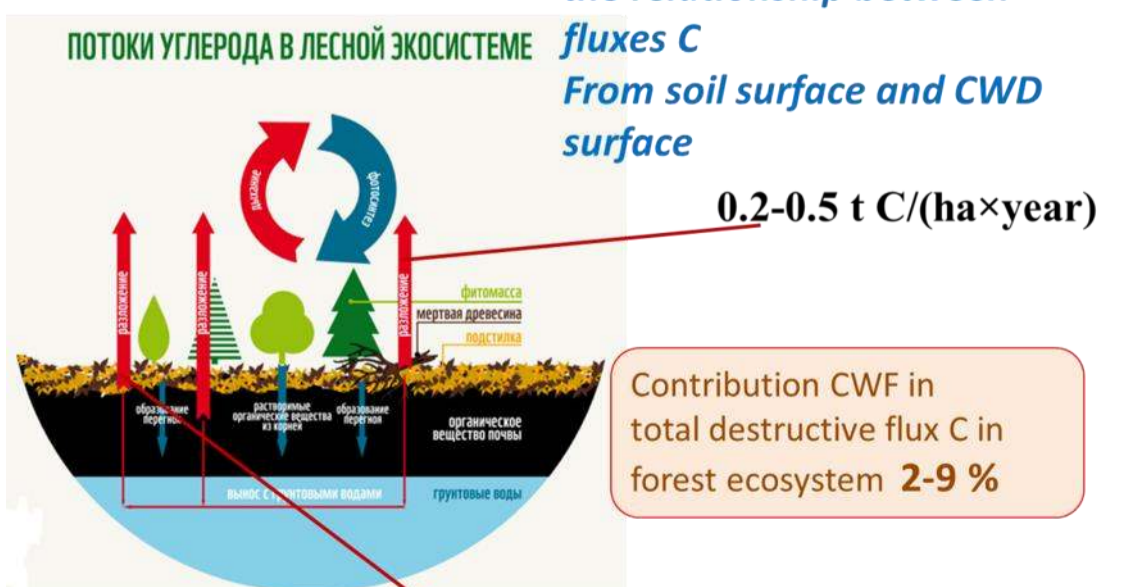
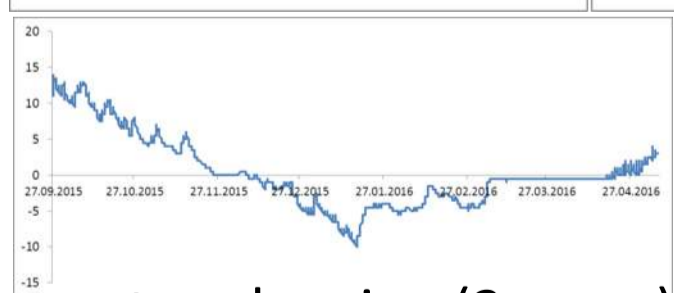
Углерод (тC/га) модель1	0.795317012314423	Объем валежа м3/га	5.67860802223415	Старт
Углерод (тC/га) модель2	1.02498875207493	Поверхность валежа (м2/га)	504.036153506535	
Число фрагментов/га модель1	881	Число пересечений	20	Финиш
Число фрагментов/га модель2	1186			



Emission vs. air temperature



Continuous air temperature logging (3 years)



№	species composition	stock, m3/ha	SA, м2/га	Age	Stock CWD, m3/ha
<b>Secondary forest</b>					
1	4К2ЛП1П1КЛ1БЖ+Г+Ил+Бж+Яс+Тр+ЧМА	273	26.8	0.8	110
2	6П2Д1К1ЛП+Бж,Г,Кл,Кол,Я,Бх,Тр	506	42.4	0.96	83
3	6П2К1Бж1КЛ+Лп+Г+Я+ББ	466	37.1	0.84	102
4	4Д3Лп2П1Яс+Кл+П+Бж+Мл+ББ+Ил+ЯБл+Маак	333	33.7	0.86	118
5	3Лп2Д2Яс1К1П1ББ+Кл+Ил+Бж+Ма+Мл+Бж+Кл+Лп+М+Ор	324	34.0	0.9	102
6	3Лп2К2Д1П1Кол1Гр+К+Бр+Ма+Кл+Л+Бп+Яс+Ил+Бж+Мл	207	23.1	0.6	105
7	3П2К2Л1П1Бж1КЛ1Г+Ил+Тр+Чр+Мел+Ор	283	29.1	0.8	110
8	3П2К2Бж1Лп1КЛ1Г+Ор,Д,Ил,Кол,Ма,Я,Бх,Тр	312	32.0	0.85	80
9	3К2П2Ил2Кл1Гр+Лп+Тр+Бж+Маак+Ор	105	10.3	0.34	94
<b>Resort forest</b>					
1	9К1Лп+П,Е,Кл,ББ,Яс,Ос	680	56	1.06	119
2	8К1Лп1Кл+П,Е,ББ	460	42.5	0.77	104
3	6К1Бж1КЛ1П1Т+П,Е,Ил,Бх,Ор,Че	434	41.2	0.75	49
4	5К1Е1Кл1Лп1Я1Ил+П,Д,Маа,Бх	282	28.3	0.64	43
5	3Е2К12Лп1Кл1Яс1Бж+ББ,Д	245	26.1	0.61	88

№	Carbon CWD (т C/ha)	Stock SWD м³/ha	Surface area CWD (м²/ha)	Flux C in atmosphere, т/(ha×year)
1	9.1	118.8	1313.7	0.59
2	11.8	104.1	1031.9	0.34
3	3.8	49.8	649.6	0.30
4	14.5	43.4	649.1	0.28
5	8.5	88.0	952.6	0.50
1	2.9	25.6	591.5	0.24
2	6.9	34.3	462.7	0.21
3	7.5	13.1	367.0	0.23
4	14.5	10.3	244.0	0.13
5	10.3	15.2	128.5	0.06
6	4.9	59.2	771.3	0.41
8	1.6	14.8	414.0	0.21
9	11.7	17.6	446.8	0.29

