APPENDIX 3. Mineral composition (volume percent) by point counting of petrographic thin sections of Eocene paleosols in the Clarno Unit of the John Day Fossil Beds National Monument, Oregon.

Paleosol	Horizon/ Field No	JODA No.	Clay	Feld-spar	Mica	Shards	Rock Frag.	Chert	Oth-er	Opa-que	Quartz
Pasct brown variant	A NL14	4072	69.4	12.8	0.4	3.4	6.8	0	0.8	6.4	0
	A NL15	4073	71.8	12.0	0.2	1.2	8.4	1.2	0	4.6	0
	Bt NL16	4074	75.6	10.0	0.2	0.2	8.6	0.8	0.2	4.4	0
	Bt NL17	4075	76.6	10.6	0	0	9.6	0	0.4	2.8	0
	Bt NL18	4076	70.0	16.2	0	0.8	9.0	0	0.4	3.4	0.2
	C NL19	4077	65.8	13.4	0.2	2.0	15.8	0	0.2	2.4	0.6
ash	- NL13	4071	49.8	6.0	2.0	0.4	40.8	0	0.6	0.4	0
Sayayk	A HC22	5098	36.0	52.0	0.4	6.4	3.6	0	0.2	1.4	0
	C HC21	5099	45.4	31.8	0	0	21.2	0	0	1.6	0
type Luquem	A HC18	5095	35.4	34.2	0.6	25.8	0	0	0	4.0	0
	C HC19	5096	35.6	46.8	0.2	9.4	4.0	0	0	3.8	0
	C HC20	5097	18.2	56.0	0.8	16.2	6.2	0	0.2	2.4	0
ash	- HC17	5094	27.0	59.6	0.2	8.2	2.8	0	0.2	2.0	0
Sayayk	A HC16	5093	61.0	12.6	0.4	0	23.0	0	0.6	1.6	0.8
type Patat	A HC8	5085	62.4	5.2	0.2	0	30.2	0	0.6	1.4	0
	A HC9	5086	56.8	18.6	0.2	0	22.2	0	0	1.4	0.8
	Bw HC10	5087	59.8	17.0	0.2	0	17.4	0	0.2	5.0	0.4
	Bw HC11	5088	41.2	17.6	0.6	0	30.0	0	0	4.4	6.2
	C HC13	5090	29.4	14.4	0	0	52.4	0	0	3.0	0.8
	C HC14	5091	43.0	16.2	0.4	0	38.8	0	0	0.6	1.0
	C HC15	5092	40.6	19.4	0	0	37.8	0	0.8	1.4	0
Sayayk	A HC4	5081	52.0	11.6	0	0	33.4	0	0.6	1.6	0.8
	A HC5	5082	46.4	12.2	0	0	40.6	0	0	0.6	0.2
	C HC6	5083	39.6	9.6	0.2	0	48.0	0	0	2.0	0.6
	C HC7	5084	40.2	9.0	0	0	47.2	0	0	3.2	0.2
conglomerate	- HC3	5080	39.2	16.0	0.2	0	42.2	0	0	2.0	0.4
conglomerate	- HC2	5079	37.4	9.0	0.6	0	50.6	0	0	2.4	0
type Pswa	A PS-0	5060	91.8	1.6	0	0	5.6	0	0.2	0.8	0
	A PS-15	5059	70.6	11.4	0	0	13.0	0	0.2	4.8	0
	Bt PS-30	5058	98.8	0	0	0	0	0	0	1.2	0
	Bt AB4	5057	54.4	31.6	0	0	3.8	0	1.2	9.0	6.0
	Bg AB3	5056	81.0	5.2	0	0	12.6	0	0.2	1.0	0
	C AB2	5054	74.8	13.8	0	0	6.6	0	0.4	4.6	0
	C AB1	5053	41.2	45.0	0.4	0	0	0	9.6	3.8	0
breccia	PS+15	5061	47.2	50.8	0	0	0.6	0	0	1.4	0
type Cmuk	O AB21	5073	97.6	0.4	0	0	0	0	0	2.0	0
	A AB19	5071	95.4	3.8	0	0	0	0	0	0.8	0
	Bg AB18	5070	86.4	1.4	0	0	10.8	0	0	1.4	0
	C AB17	5069	90.6	1.3	0	0	7.3	0	0	0.6	0
	C AB16	5068	88.8	1.6	0	0	8.0	0	0	1.2	0
Sayayk	A NB17	4140	65.6	19.6	0	0	5.0	8.8	0	1.0	0
	C NB18	4141	54.8	30.4	0.2	0.4	8.4	4.0	0.4	1.4	0
Sayayk	A NB15	4138	37.2	46.0	0	1.0	13.8	0	0.2	1.8	0

APPENDIX 3. continued

Paleosol	Horizon/ Field No	JODA No.	Clay	Feld-spar	Mica	Shards	Rock Frag.	Chert	Oth-er	Opa-que	Quartz
	C NB16	4139	27.2	7.0	0	0	64.4	0	0.4	1.0	0
type Sayayk	A NB11	4134	38.0	4.8	0.8	0	18.2	32.2	0	6.0	0
	A NB12	4135	38.6	14.8	0.2	0	21.8	15.8	1.2	7.6	0
	C NB13	4136	42.6	19.0	0.2	0	31.8	4.0	0	2.4	0
	C NB14	4137	46.8	28.4	0	0.8	15.2	5.4	0	3.0	0
Sayayk	A NB9	4132	57.4	6.8	0	0.2	4.2	30.8	0	0.6	0
	C NB10	4133	40.6	10.0	0.2	1.0	2.0	45.2	0.6	0.4	0
Sayayk	A NB7	4130	58.6	24.4	0	3.2	2.0	9.0	0.6	1.8	0
	C NB8	4131	43.6	23.8	0	1.0	7.8	23.0	0.4	0.4	0
Sayayk	A NB5	4128	52.8	34.8	0.4	3.0	5.0	0.4	2.0	1.6	0
	C NB6	4129	29.0	37.4	0	1.2	5.0	22.4	2.8	2.2	0
Luquem	A NB2	4125	47.0	19.0	0.8	8.4	7.0	13.4	3.4	1.0	0
	C NB3	4126	45.4	24.2	0.2	5.0	5.0	18.4	0.6	1.2	0
	C NB4	4127	41.2	26.8	0.2	5.8	7.0	17.8	0.2	1.0	0
sandstone	- NB1	4124	9.6	5.0	0	2.2	54.0	0.6	23.0	5.6	0
type Scat	A CH10	4168	93.0	0.6	0	0	4.2	0	0.2	2.0	0
	A CH11	4169	86.6	0	0	0	7.6	0	0.6	5.2	0
	C CH12	4170	76.6	1.0	0	0	18.6	0	0.6	3.0	0
	C CN13	4171	57.6	0	0	0	37.6	0	0	4.8	0
type Lakayx	A CH2	4160	94.2	1.0	0	0	4.2	0	0	0.6	0
	Bt CH5	4162	94.6	1.0	0	0	4.2	0	0	0.2	0
	Bt CH4	4163	97.6	0.6	0	0	1.2	0	0	0.4	0
	Bt CH6	4164	97.8	0.4	0	0	1.6	0	0	0.2	0
	Bt CH7	4165	98.4	0.6	0	0	0.6	0	0	0.4	0
	BC CH8	4166	95.4	0.8	0	0	3.2	0	0	0.6	0
	C CH9	4167	95.4	1.2	0	0	2.4	0	0.4	0.4	0
Lakayx	C CH1	4159	95.8	1.4	0	0	2.0	0	0	0.8	0
Lakayx	A CH28	4184	92.6	0	0	0	4.2	0	0	3.0	0
	A CH29	4185	90.8	1.0	0	0	5.4	0	0	2.8	0
	Bt CH30	4186	96.0	0.6	0	0	1.8	0	0	1.6	0
	Bt CH31	4187	95.6	2.0	0	0	1.8	0	0	0.6	0
	Bt CH32	4188	97.2	0.6	0	0	1.6	0	0	0.6	0
	C CH33	4189	97.6	0.6	0	0	1.0	0	0	0.8	0
	C CH34	4190	93.0	0.6	0	0	1.1	0	0	5.1	0
Luca concretionary variant	A CH41T	4193	92.4	2.2	0	0	5.4	0	0	0	0
	A CH41	4194	85.6	3.4	0	0	10.2	0	0	0.8	0
	Bt CH40	4195	87.2	1.2	0	0	10.0	0	0.6	0.2	0
	Bt CH40B	4196	93.6	0.8	0	0	5.4	0	0	0.2	0
	BCCH39T	4197	80.0	0.4	0	0	19.2	0	0	0.4	0
	C CH39	4198	59.2	0.2	0	0	40.2	0	0.2	0.2	0
type Sitaxs	A CH50	4199	66.6	3.6	0	0	20.0	0	0.8	9.0	0
	A CH49	5000	89.2	2.0	0	0	7.6	0	0.4	0.8	0
	Bw CH48	5001	83.0	1.0	0	0	13.4	0	2.4	0.2	0
	C CH47	5002	76.4	1.4	0	0	21.0	0	0.4	0.8	0

APPENDIX 3. continued

Paleosol	Horizon/ Field No	JODA. No.	Clay	Feld-spar	Mica	Shards	Rock Frag.	Chert	Oth-er	Opa-que	Quartz
	C CH46	5003	77.0	1.4	0	0	21.4	0	0.2	0.2	0
Acas	A AK9	5108	79.6	5.6	0.2	0	7.4	0	0	7.2	0
type Acas	A AK2	5101	71.8	17.2	1.2	0	5.4	0	0	4.2	0.2
	A AK3	5102	51.0	12.6	0.2	0	14.4	0	0	21.4	0.4
	A AK4	5103	64.8	9.6	0.6	0	9.6	0	0	15.4	0
	Bt AK5	5104	59.2	10.4	0	0	12.6	0	0	17.8	0
	Bt AK6	5105	63.0	20.4	0.6	0	13.6	0	0	2.4	0
	Bt AK7	5106	68.0	5.6	0	0	17.8	0	0	8.6	0
	C AK8	5107	48.2	16.4	0.2	0	18.6	0	0	16.6	0
claystone	- AK1	5100	39.8	20.6	0.4	0	36.8	0	0	2.4	0
Micay	A MQ15	5118	77.4	9.8	0	4.2	4.2	0	0	8.0	0
Lakim septarian variant	A MQ21	5112	85.6	6.2	0	2.6	2.8	0	0	2.8	0
	A MQ20	5113	86.2	5.4	0	3.0	2.6	0	0	2.8	0
	Bw MQ19	5114	87.4	3.8	0	3.2	3.0	0	0	2.6	0
	Bw MQ18	5115	83.2	5.6	0	5.6	3.2	0	0	2.4	0
	C MQ17	5116	79.8	9.2	0	4.8	3.0	0	0	3.2	0
type Micay	A MQ23	5110	82.6	6.8	0	1.6	5.4	0	0	3.6	0
	C MQ22	5111	79.2	9.8	0	2.6	4.6	0	0	3.8	0
	C MQ16	5117	77.6	7.4	0	4.4	4.2	0	0	2.8	0
siltstone	- MQ24	5109	77.2	8.4	0	5.4	5.6	0	0	3.4	0
type Pasct	A R40	5045	74.6	15.8	1.0	0	4.6	0	0	4.0	0
	A R41	5046	69.4	22.2	0.4	0	5.6	0	0	1.6	0.8
	A R42	5047	70.6	12.2	0	0	16.8	0	0	0	0.4
	Bt R43	5048	80.2	16.4	0.4	0	2.6	0	0	0.4	0
	Bt R44	5049	76.6	11.0	1.4	0	9.4	0	0	1.2	0.4
	C R45	5050	69.0	19.2	0.4	0	7.8	0	0	3.2	0.4
ash-flow tuff	- R39	5044	62.4	13.0	1.2	0	7.0	0	0	7.0	9.2
type Luca	A JD1	5119	93.6	2.6	0	0	2.0	0	0	1.6	0.2
	Bt JD3	5121	95.8	1.8	0	0	1.4	0	0	0.6	0.4
	C JD5	5123	80.2	6.5	0	0	5.3	0	0	3.6	4.4

Note: Paleosol names, counts and error as for Appendices 1 and 2. Category of other is for volumetrically minor minerals, including chalcedony, hornblende, calcite and zeolites. The large percentage of other minerals for JODA4124 is 19.8% calcite cement and 3.2% chalcedony.