Supplemental Table 1: Sample information for the Middle Magdalena Valley Basin (MMVB) and adjacent tectonic provinces of the northernmost Andes of Colombia.

Site	Sample	Age	Stratigraphic Unit	n =	Latitude (N)	Longitude (W)	Reference
Cocuyo Well	Cocuyo1-7	3. Late Cretaceous − early Paleocene	lower Umir Fm.	16	7.39530	73.85025	This study
Cocuyo Well	Cocuyo1-5	5. early – late Eocene	upper Cantagallo Fm.	101	7.39530	73.85025	This study
Cocuyo Well	Cocuyo1-4	6. late Eocene – early Oligocene	Esmeraldas Fm.	52	7.39530	73.85025	This study
Cocuyo Well	Cocuyo1-3	7. Oligocene	lower Mugrosa Fm.	48	7.39530	73.85025	This study
Cocuyo Well	Cocuyo1-2	8. early – middle Miocene	lower Colorado Fm.	102	7.39530	73.85025	This study
Guane Well	Guane1-14	1. Jurassic	Giron Fm.	112	7.23360	73.79962	This study
Guane Well	Guane1-13	2. Early Cretaceous	Los Santos Fm.	55	7.23360	73.79962	This study
Guane Well	Guane1-12	2. Early Cretaceous	Rosa Blanca Fm.	52	7.23360	73.79962	This study
Guane Well	Guane1-9	6. late Eocene – early Oligocene	Esmeraldas Fm.	112	7.23360	73.79962	This study
Guane Well	Guane1-8	7. Oligocene	Mugrosa Fm.	107	7.23360	73.79962	This study
Guane Well	Guane1-2	9. late Miocene	Real Fm.	82	7.23360	73.79962	This study
Cagui Well	CAG1-14	1. Jurassic	Giron Fm.	99	7.68098	73.57646	This study
Cagui Well	CAG1-12	2. Early Cretaceous	Paja Fm.	96	7.68098	73.57646	This study
Cagui Well	CAG1-11	6. late Eocene – early Oligocene	Esmeraldas Fm.	92	7.68098	73.57646	This study
Cagui Well	CAG1-10	7. Oligocene	lower Mugrosa Fm.	124	7.68098	73.57646	This study
Cagui Well	CAG1-9	7. Oligocene	upper Mugrosa Fm.	77	7.68098	73.57646	This study
Cagui Well	CAG1-8	8. early – middle Miocene	lower Colorado Fm.	94	7.68098	73.57646	This study
Cagui Well	CAG1-7	8. early – middle Miocene	middle Colorado Fm.	115	7.68098	73.57646	This study
Cagui Well	CAG1-6	8. early – middle Miocene	upper Colorado Fm.	97	7.68098	73.57646	This study
Cagui Well	CAG1-5	9. late Miocene	lower Real Fm.	84	7.68098	73.57646	This study
Cagui Well	CAG1-2	9. late Miocene	upper Real Fm.	81	7.68098	73.57646	This study
Nuevo Mundo syncline - East	RS0114091	3. Late Cretaceous − early Paleocene	Lisama Fm.	39	7.21700	73.32700	Nie et al. (2010)
Nuevo Mundo syncline - East	U821	4. mid-Paleocene − early Eocene	Lisama Fm.	56	7.22500	73.32901	Nie et al. (2010)
Nuevo Mundo syncline - East	U08022	4. mid-Paleocene − early Eocene	La Paz Fm.	27	7.22900	73.33302	Nie et al. (2010)
Nuevo Mundo syncline - East	CU612P	5. early – late Eocene	La Paz Fm.	46	7.23900	73.34202	Nie et al. (2010)
Nuevo Mundo syncline - East	U08024	5. early – late Eocene	Esmeraldas Fm.	67	7.23497	73.35015	Nie et al. 2012)
Nuevo Mundo syncline - East	VC062	6. late Eocene – early Oligocene	Esmeraldas Fm.	98	7.23894	73.35805	Nie et al. (2012)
Nuevo Mundo syncline - East	VC063	6. late Eocene – early Oligocene	Esmeraldas Fm.	95	7.23672	73.35585	Nie et al. (2012)
Nuevo Mundo syncline - East	U08025	7. Oligocene	Mugrosa Fm.	72	7.25290	73.37502	Nie et al. (2010)
Nuevo Mundo syncline - East	VC066	7. Oligocene	Mugrosa Fm.	91	7.24389	73.35800	Nie et al. (2012)
Nuevo Mundo syncline - East	VC067	7. Oligocene	Mugrosa Fm.	88	7.24664	73.35909	Nie et al. (2012)
Nuevo Mundo syncline - East	M09	8. early – middle Miocene	Colorado Fm.	43	7.25500	73.38401	Nie et al. (2010)
Nuevo Mundo syncline - East	U08027	8. early – middle Miocene	Colorado Fm.	67	7.26200	73.38902	Nie et al. (2010)
Nuevo Mundo syncline - East	U08028	9. late Miocene	Real Gr.	49	7.26200	73.41002	Nie et al. (2010)
Nuevo Mundo syncline - West	LM1505097	3. Late Cretaceous − early Paleocene	Lisama Fm.	53	7.13816	73.53906	Caballero et al. (2013a)
Nuevo Mundo syncline - West	NM1-2	4. mid-Paleocene − early Eocene	La Paz Fm.	0	7.13365	73.52729	Reyes-Harker et al. (2015)
Nuevo Mundo syncline - West	NM2A	4. mid-Paleocene − early Eocene	La Paz Fm.	88	7.13365	73.52729	Reyes-Harker et al. (2015)
Nuevo Mundo syncline - West	NM2B	4. mid-Paleocene − early Eocene	La Paz Fm.	81	7.13365	73.52729	Reyes-Harker et al. (2015)
Nuevo Mundo syncline - West	NM3A	4. mid-Paleocene − early Eocene	Toro shale Fm.	78	7.13330	73.52692	Reyes-Harker et al. (2015)
Nuevo Mundo syncline - West	NM3B	4. mid-Paleocene − early Eocene	Toro shale Fm.	88	7.13330	73.52692	Reyes-Harker et al. (2015)
Nuevo Mundo syncline - West	NM1	5. early – late Eocene	La Paz Fm.	86	7.13364	73.52727	Reyes-Harker et al. (2015)
Nuevo Mundo syncline - West	WS0110097	5. early – late Eocene	La Paz / Esmeraldas Fm.	52	7.25296	73.52739	This study
Nuevo Mundo syncline - West	WS0107094	5. early – late Eocene	Esmeraldas Fm.	83	7.17364	73.55413	This study
Nuevo Mundo syncline - West	NM4	5. early – late Eocene	Esmeraldas Fm.	93	7.13309	73.52624	Caballero et al. (2013a)
Nuevo Mundo syncline - West	LM1505093	6. late Eocene – early Oligocene	Esmeraldas Fm.	106	7.17364	73.55413	Caballero et al. (2013a)
Nuevo Mundo syncline - West	NM6A	6. late Eocene – early Oligocene	Esmeraldas Fm.	75	7.17378	73.55220	Reyes-Harker et al. (2015)
Nuevo Mundo syncline - West	NM6B	6. late Eocene – early Oligocene	Esmeraldas Fm.	104	7.17378	73.55220	Reyes-Harker et al. (2015)
Nuevo Mundo syncline - West	Santos111A	6. late Eocene – early Oligocene	Esmeraldas Fm.	88	7.35276	73.45267	Caballero et al. (2013a)
Nuevo Mundo syncline - West	Santos111B	6. late Eocene – early Oligocene	Esmeraldas Fm.	74	7.35276	73.45265	Reyes-Harker et al. (2015)
Nuevo Mundo syncline - West	WS0109095	6. late Eocene – early Oligocene	Esmeraldas Fm.	51	7.25555	73.52587	This study
Nuevo Mundo syncline - West	Lisama146A	7. Oligocene	Mugrosa Fm.	92	7.12621	73.55093	Caballero et al. (2013a)
Nuevo Mundo syncline - West	LM1505094	7. Oligocene	Mugrosa Fm.	99	7.17369	73.55208	Caballero et al. (2013a)
Nuevo Mundo syncline - West	LM1505095	7. Oligocene	Mugrosa Fm.	94	7.17481	73.54842	Nie et al. (2010)
Nuevo Mundo syncline - West	NM7	7. Oligocene	Mugrosa Fm.	79	7.17462	73.54541	Bayona et al. (2012)
Nuevo Mundo syncline - West	NM8A	7. Oligocene	Mugrosa Fm.	92	7.17443	73.54496	Reyes-Harker et al. (2015)
Nuevo Mundo syncline - West	NM8B	7. Oligocene	Mugrosa Fm.	89	7.17443	73.54496	Reyes-Harker et al. (2015)
Nuevo Mundo syncline - West	LM1505096	8. early – middle Miocene	Colorado Fm.	101	7.16872	73.53532	Caballero et al. (2013a)
La Salina footwall	LC08031	7. Oligocene	Mugrosa Fm.	68	6.85400	73.77102	Caballero et al. (2013a)
La Salina footwall	BEL1-2	8. early – middle Miocene	Colorado Fm.	85	7.10662	73.57171	This study
La Salina footwall	LC08033	8. early – middle Miocene	Colorado Fm.	41	6.88500	73.75202	Caballero et al. (2013a)
La Salina footwall	LC08035	9. late Miocene	Real Gr.	89	7.09700	73.62702	Caballero et al. (2013a)
Opón Syncline	1072-014	3. Late Cretaceous − early Paleocene	Umir Fm.	102	6.24721	73.79026	Caballero et al. (2013b)
Opón Syncline	1072-028	3. Late Cretaceous − early Paleocene	Umir Fm.	92	6.39791	73.74854	Caballero et al. (2013b)
Opón Syncline	1072-029	4. mid-Paleocene − early Eocene	Lisama Fm.	72	6.37974	73.78066	Caballero et al. (2103b)
Opón Syncline	1072-030	4. mid-Paleocene − early Eocene	Lisama Fm.	90	6.37288	73.78633	Caballero et al. (2103b)
Opón Syncline	1072-031	4. mid-Paleocene − early Eocene	Lisama Fm.	85	6.35323	73.85636	Caballero et al. (2103b)
Opón Syncline	1072-017	7. Oligocene	Mugrosa Fm.	76	6.36697	73.86109	Caballero et al. (2013b)
Opón Syncline	1072-018	7. Oligocene	Mugrosa Fm.	95	6.38162	73.88144	Caballero et al. (2013b)
Opón Syncline	1072-025	7. Oligocene	Mugrosa Fm.	89	6.41103	73.87002	Caballero et al. (2013b)
Opón Syncline	RO3101092	8. early – middle Miocene	Colorado Fm.	94	6.38095	73.89758	Caballero et al. (2103b)
Opón Syncline	1072-013	8. early – middle Miocene	Colorado Fm.	95	6.40813	73.85950	Caballero et al. (2013b)
Opón Syncline	1072-020	8. early – middle Miocene	Colorado Fm.	99	6.38096	73.89528	Caballero et al. (2013b)

Opón Syncline	1072-026	8. early – middle Miocene	Colorado Fm.	95	6.44892	73.83852	Caballero et al. (2013b)
Opón Syncline	RO290109	9. late Miocene	Real Gr.	37	6.38984	73.93400	Caballero et al. (2103b)
Opón Syncline	1072-016	9. late Miocene	Real Gr.	86	6.45752	73.80868	Caballero et al. (2013b)
Opón Syncline	1072-019	9. late Miocene	Real Gr.	94	6.37637	73.89770	Caballero et al. (2013b)
Opón Syncline	1072-021	9. late Miocene	Real Gr.	88	6.37899	73.90342	Caballero et al. (2013b)
Opón Syncline	1072-022	9. late Miocene	Real Gr.	85	6.37870	73.91834	Caballero et al. (2013b)
Opón Syncline	1072-023	9. late Miocene	Real Gr.	74	6.37830	73.92138	Caballero et al. (2013b)
Opón Syncline	1072-024	9. late Miocene	Mesa Fm.	78	6.38967	73.93370	Caballero et al. (2013b)
Opón Syncline	1072-027	9. late Miocene	Real Gr.	94	6.45684	73.82349	Caballero et al. (2013b)
Rio Ermitaño Syncline	1072-91	5. early – late Eocene	La Paz / Esmeraldas Fm.	103	5.93977	74.30238	Caballero et al. (2013b)
Rio Ermitaño Syncline	1072-92	6. late Eocene – early Oligocene	Esmeraldas Fm.	101	5.93657	74.28194	Caballero et al. (2013b)
Rio Ermitaño Syncline	1072-102	7. Oligocene	Mugrosa Fm.	102	5.96655	74.09162	Caballero et al. (2013b)
Rio Ermitaño Syncline	1072-103	7. Oligocene	Mugrosa Fm.	97	5.96846	74.09723	Caballero et al. (2013b)
Rio Ermitaño Syncline	1072-93	7. Oligocene	upper Mugrosa Fm.	95	5.95196	74.25677	Caballero et al. (2013b)
Rio Ermitaño Syncline	1072-94	7. Oligocene	upper Mugrosa Fm.	94	5.94115	74.24018	Caballero et al. (2013b)
Guaduas Syncline	1072-131	2. Early Cretaceous	Simijaca Fm.	66	5.00773	74.33754	Caballero et al. (2013b)
Guaduas Syncline	1072-123	3. Late Cretaceous − early Paleocene	Umir Fm.	93	5.02302	74.54431	Caballero et al. (2013b)
Guaduas Syncline	1072-121	3. Late Cretaceous − early Paleocene	Seca Fm.	94	5.05989	74.56040	Caballero et al. (2013b)
Guaduas Syncline	HM543	3. Late Cretaceous − early Paleocene	Seca Fm.	93	4.81049	74.56515	Reyes-Harker et al. (2015)
Guaduas Syncline	HM606	3. Late Cretaceous − early Paleocene	Guaduero Unidad 1	97	5.19151	74.57258	Reyes-Harker et al. (2015)
Guaduas Syncline	HM701	3. Late Cretaceous − early Paleocene	lower Hoyon Fm. (base)	102	4.89587	74.71469	Bayona et al. (2012)
Guaduas Syncline	HM548	4. mid-Paleocene − early Eocene	lower Hoyon Fm.	100	4.82757	74.57364	Reyes-Harker et al. (2015)
Guaduas Syncline	HM747	4. mid-Paleocene − early Eocene	middle Hoyon Fm.	66	4.82075	74.58191	Bayona et al. (2012)
Guaduas Syncline	FL225	4. mid-Paleocene − early Eocene	Chorrillo Unidad 1	108	5.25416	74.58932	Reyes-Harker et al. (2015)
Guaduas Syncline	FL216	4. mid-Paleocene − early Eocene	Chorrillo Unidad 2	92	5.25909	74.58819	Reyes-Harker et al. (2015)
Guaduas Syncline	FL242	5. early – late Eocene	Chorrillo Unidad 2	105	5.24601	74.58224	Reyes-Harker et al. (2015)
Guaduas Syncline	HM528	5. early – late Eocene	upper Hoyon Fm.	88	4.86088	74.58399	Bayona et al. (2012)
Guaduas Syncline	HM563	6. late Eocene – early Oligocene	San Juan de Rio Seco Fm.	114	4.86846	74.58078	Bayona et al. (2012)
Guaduas Syncline	1072-119	7. Oligocene	San Juan de Rio Seco Fm.	91	5.06443	74.58709	Caballero et al. (2013b)
Guaduas Syncline	1072-120	7. Oligocene	San Juan de Rio Seco Fm.	95	5.06054	74.58545	Caballero et al. (2013b)
Guaduas Syncline	HM573	8. early – middle Miocene	Santa Teresa Fm.	102	4.87997	74.59240	Reyes-Harker et al. (2015)
Guaduas Syncline	HM590	8. early – middle Miocene	Santa Teresa Fm.	40	4.88594	74.61011	Reyes-Harker et al. (2015)
Modern River	NA0122041B	10. modern river	Rio Nare	110	6.20529	74.59165	Nie et al. (2012)
Modern River	NE012109	10. modern river	Rio Nechi	95	7.49119	74.87144	Nie et al. (2010)
Modern River	SD011809_1	10. modern river	Rio Sto Domingo	67	7.68076	74.03220	Nie et al. (2012)
Modern River	RU030109	10. modern river	Rio Umbala	83	6.81957	72.99020	Nie et al. (2012)
Modern River	RM0301091	10. modern river	Rio Manco	80	6.82801	72.98999	Nie et al. (2012)
Modern River	CRA060909	10. modern river	Rio Cravo Sur	69	5.36100	72.40400	Bande et al. (2012)
Modern River	CUS061409	10. modern river	Rio Cusiana	82	5.00100	72.62900	Bande et al. (2012)