

### Supplementary material Table S1

**Table S1.** Summary of input requirements for various Manned and Unmanned flight missions for aerial photography of Aparima River Near Wreys Bush, Southland, NZ.

Flying phase	Flight Type	Flight ID	Skillsets (no.)	Support Skillsets (no.)	Total Skillsets (no.)	Training (Days)	Logistical (Days)	Establishment Cost (US\$)	Administrative (Days)	Operational Cost (US\$)	Execution (Days)	Total time (Days)	Total Money (US\$)
Pre	Manned	O1	1	0	1	15	7	1400	3	700	2	27	2100
		O2	1	0	1	1	1	35	3	700	2	7	735
		O3	1	0	1	1	1	35	3	700	2	7	735
	Unmanned	U1	1	0	1	7	3	350	10	7	1	21	357
		U2	1	0	1	1	1	35	2	35	1	5	70
		U3	1	0	1	1	1	35	2	35	1	5	70
Peri	Manned	O1	2	0	2	350	200	35,700	2	4060	1	553	39,760
		O2	2	0	2	1	150	70	2	3710	1	154	3780
		O3	2	0	2	1	150	70	2	3360	1	154	3430
	Unmanned	U1	1	1	2	30	5	2800	3	700	1	39	3500
		U2	1	1	2	1	5	35	2	700	1	9	735
		U3	1	1	2	1	5	35	2	700	1	9	735
Post	Manned	O1	1	0	1	30	5	1400	1	70	25	61	1470
		O2	1	0	1	1	3	35	1	70	20	25	105
		O3	1	0	1	1	3	35	1	70	15	20	105
	Unmanned	U1	1	0	1	30	2	1400	1	70	3	36	1470
		U2	1	0	1	1	1	35	1	14	2	5	49
		U3	1	0	1	1	1	35	1	14	2	5	49
Overall	Manned	O1	4	0	4	395	212	38,500	6	4830	28	641	43,330
		O2	4	0	4	3	153	140	6	4480	23	185	4620
		O3	4	0	4	3	153	140	6	4130	18	180	4270
	Unmanned	U1	3	1	4	67	8	4550	14	777	5	94	5327
		U2	3	1	4	3	5	105	5	749	4	17	854
		U3	3	1	4	3	5	105	5	749	4	17	854

### Supplementary material Table S2

Table 2. Efficiency measures of the Manned and Unmanned flight missions for aerial imaging Aprima River, NZ.

Flying phase	Flight Type	Flight ID	Efficiency			
			Technological	Logistical	Administrative	Economical
Pre	Manned	O1	0.85	0.12	0.57	0.16
		O2	0.85	0.85	0.57	0.61
		O3	1.00	1.00	1.00	1.00
	Unmanned	U1	1.00	0.33	0.20	0.24
		U2	1.00	1.00	1.00	1.00
		U3	1.00	1.00	1.00	1.00
Peri	Manned	O1	0.85	0.02	0.85	0.02
		O2	0.85	0.43	0.85	0.17
		O3	1.00	1.00	1.00	1.00
	Unmanned	U1	1.00	1.00	0.67	0.23
		U2	1.00	1.00	1.00	1.00
		U3	1.00	1.00	1.00	1.00
Post	Manned	O1	0.85	0.17	0.85	0.07
		O2	0.85	0.85	0.85	0.40
		O3	1.00	1.00	1.00	1.00
	Unmanned	U1	1.00	0.50	1.00	0.14
		U2	1.00	1.00	1.00	1.00
		U3	1.00	1.00	1.00	1.00
Overall	Manned	O1	0.64	0.02	0.71	0.02
		O2	0.64	0.64	0.71	0.16
		O3	1.00	1.00	1.00	1.00
	Unmanned	U1	1.00	0.63	0.36	0.18
		U2	1.00	1.00	1.00	1.00
		U3	1.00	1.00	1.00	1.00