

APPENDIX 1: LOCATIONS OF SAMPLING SITES AND LITTORAL MACROINVERTEBRATES IDENTIFIED

No	Date sampled	Name	GPS no	Point description	Macroinvertebrates found			
1	15.03.2017	Don Tu	1040 20° 23.877' N 100° 8.096' E	Large island – mainly sand with gravel channels. Grasses growing on higher areas and overhanging water. Homonia shrubs in water. Midstream	Location	Don Tu		
					Order	Family	Species	Score
					Plecoptera	Perlidae	<i>Etrocorema nigrogeniculatum</i>	10
					Ephemeroptera	Baetidae	<i>Heterocloeon</i> sp.	5
							<i>Platybaetis</i> sp.	
							<i>Cloeon</i> sp.	
							<i>Bicaudatus</i> sp.	
							<i>Baetis</i> sp	
					Hemiptera	Micronectidae	<i>Micronecta</i> sp	5
					Coleoptera		unidentified	5
					Decapoda	Palaemonidae	<i>Macrobrachium lanchesteri</i>	8
						Atyidae	<i>Caridina</i> sp	4
					Veneroida	Corbiculidae	<i>Corbicula</i> sp.	3
							Total	37
		Average River health score	6.0					
2	14.03.2017	Khon Phi Luang	1037 20° 22.786'N 100° 21.179'E	Midstream. Rocky island with sand, grasses, Homonia shrubs	Location	Khon Phi Luang		
					Order	Family	Species	Score
					Ephemeroptera	Baetidae	<i>Heterocloeon</i> sp.	5
							<i>Platybaetis</i> sp.	
					Hemiptera	Micronectidae	<i>Micronecta</i> sp	5
							<i>Micronecta</i> sp. (nymph)	
					Hymenoptera	Mymaridae	unidentified	
					Plecoptera	Perlidae	<i>Carapbractus</i> sp.	10
							<i>Etrocorema</i> sp. (Nymph)	
							Total	20
		Average	6.6					
3	15.03.2017	Chong Xai	1050 20° 19.422' N 100° 22.811' E	Sandbank. Sampled inlet behind bank with overhanging grasses. Right bank	Location	Chong Xai		Score
					Order	Family	Species	
					Ephemeroptera	Baetidae	<i>Baetis</i> sp	5
							<i>Bicaudatus</i> sp	

No	Date sampled	Name	GPS no	Point description	Macroinvertebrates found				
					Order	Family	Species	Score	
					Hemiptera	Micronectidae	<i>Micronecta</i> sp	5	
					Hymenoptera	Braconidae			
					Decapoda	Atyidae	<i>Caridina</i> sp	4	
						Total		14	
						Average		4.6	
4	16.03.2017	Don Ngao 1 - shallow pool left in sand	1081 20° 9.904'N 100° 32.444'E	Right bank. Large sandy island with grasses on higher parts and channel running through it. Vegetation sweeps.	Location	Don Ngao 1- shallow pool left in sand		Score	
					Order	Family	Species		
					Coleoptera	Dytiscidae	<i>Rhantus binotatus</i>	5	
							<i>Dytiscidea hexapoda</i>		
5	16.03.2017	Don Ngao 2 – leading edge grasses in water	1082 20° 9.845'N 100° 32.357'E			Hemiptera	Micronectidae	<i>Micronecta</i> sp	5
							<i>Micronecta</i> sp. (nymph)		
							Don Ngao 2- leading edge grasses in water		
						Ephemeroptera	Baetidae	<i>Baetis</i> sp	5
						Coleoptera	Dytiscidae	<i>Rhantus binotatus</i>	5
						Hemiptera	Micronectidae	<i>Micronecta</i> sp	5
							<i>Micronecta</i> sp. (nymph)		
					Decapoda	Atyidae	<i>Caridina</i> sp	4	
						Total		19	
						Average		4.75	
6	16.03.2017	Khon Kham island	1090 – 91 20° 10.557'N 100° 33.446'E	Mid-stream. Rocky island at beginning of rapid with small sandy beach. Consists of many large boulders, covered with tall grasses, surrounded by Homonia in water.	Location	Khon Kham island			
					Order	Family	Species	Score	
					Ephemeroptera	Baetidae	<i>Baetis</i> sp	5	
					Decapoda	Palaemonidae	<i>Macrobrachium lanchesteri</i>	8	
						Total		13	
						Average		6.5	
7	16.03.2017	Ban Houay Thong 1 - river	1094 20° 9.025'N	Left bank. Pebble and sand flats in front of ponds and gold panning workings, with Homonia shrubs. Sampled in vegetation and pebbles on river and in	Location	Ban Houay Thong 1-river			
			100° 35.337'E		Order	Family	Species	Score	
8	16.03.2017	Ban Houay Thong 2 – pond 10 m from river			Ephemeroptera	Baetidae	<i>Baetis</i> sp	5	
							<i>Bicaudatus</i> sp		
							<i>Cloeon</i> sp.		
						<i>Heterocloeon</i> sp.			

No	Date sampled	Name	GPS no	Point description	Macroinvertebrates found								
				small pond behind the bank. + Big water beetle	Decapoda	Atyidae	<i>Caridina sp</i>	4					
					Ban Houay Thong 2-pond 10 m from river								
					Ephemeroptera	Baetidae	<i>Baetis sp</i>	5					
							<i>Platybaetis sp</i>						
							<i>Cloeon sp.</i>						
					Coleoptera	Elmidae	<i>Stenelmis sexlineata</i>	5					
					Odonata	Libellulidae	<i>Tramea sp</i>	5					
							Total	19					
							Average	4.75					
9	17.03.2017	Kheang Phak	1105 19° 52.649'N 100° 34.968'E	Clayey/muddy bank, with Homonia shrubs Left bank	Location	Kheang Phak							
					Order	Family	Species	Score					
					Ephemeroptera	Baetidae	<i>Baetis sp</i>	5					
							<i>Pseudocloeon sp</i>						
							<i>Heterocloeons sp</i>						
					Odonata	Gomphidae	<i>unidentified</i>	5					
					Coleoptera		<i>Dytiscidea hexapoda</i>						
					Decapoda	Atyidae	<i>Caridina sp</i>	4					
							Total	14					
		Average	4.7										
10	17.03.2017	Houay Khouak downstream of Khon Din	1123/24 19° 52.854'N 100° 46.515'E	Small stream on right bank just upstream of village. Steep banks, gravelly muddy bottom, not much vegetation in water. Trees on banks above stream. Small fish.	Location	Houay Khouak downstream of Khon Din							
					Order	Family	Species	Score					
					Ephemeroptera	Leptophlebiidae	<i>Choroterpides sp</i>	8					
					Tricoptera		<i>unidentified</i>	7					
					Odonata	Gomphidae	<i>unidentified</i>	5					
							Total	20					
							Average	6.7					
					11	18.03.2017	Houay En	1163 19° 49.332'N 101° 23.181'E	Small stream on right bank. Flowing down sandy bank. Varied substrate, boulders, small rocks, gravel and sand with small pools and runs.	Location	Houay En		
										Order	Family	Species	Score
Plecoptera	Capniidae	<i>Allocapnia sp.</i>	10										
Ephemeroptera	Baetidae	<i>Baetis sp</i>	5										
		<i>Cloeon sp</i>											
	Heptageniidae	<i>Cinygmia sp.</i>	5										
	Leptophlebiidae	<i>Choroterpides sp.</i>	8										

No	Date sampled	Name	GPS no	Point description	Macroinvertebrates found			
						Ephemerae	<i>Ephemera</i> sp	5
						Polymitaeridae	<i>Polyplocia</i> sp.	8
					Tricoptera	Hydropsychidae	<i>Hydatomanicus</i> sp. (larva)	10
						Beraeidae	<i>Beraea fontana</i> (larva case)	10
					Odonata	Libellulidae	<i>Parapynx</i> sp	5
					Coleoptera	Elmidae	<i>Stenelmis sexlineata</i>	5
					Diptera	Tipulidae	<i>Antocha</i> sp	5
						Chironomidae	<i>Chironomus</i> sp.	3
							<i>Procladius</i> sp.	
					Hemiptera	Notonectidae	<i>Nychia sappho</i>	5
						Gerridae	unidentified	5
						Naucoridae	<i>Pelocoris shoshone</i>	9
						Belostomatidae	<i>Diplonychus rusticus</i>	5
					Lepidoptera	Paralidae	unidentified	5
					Mesogastropoda	Hydrobiidae	<i>Pachydrobia</i> sp	3
							Total	121
							Average	6.7
12	18.03.2017	Ban Khokkham	1223 20° 5.185'N 102° 9.788'E	Left bank opposite limestone cliff. Bank consists of sloping limestone slab with small sandy/earth beech (with earthworm diggings) at one end, and overhanging grass and Homonia bushes at other end	Location	Ban Khokkham		
					Order	Family	Species	Score
					Decapoda	Palaemonidae	<i>Macrobrachium yui</i>	8
						Atyidae	<i>Caridina</i> sp.	4
							Total	
							Average	6.0
13	18.03.2017	Island downstream of Kheang Leuk	1230 20° 1.670'N 102° 13.236'E and	Large sandy island, with some clay and gravel layers, and occasional bedrock outcrops. Mixed Sample 1) amongst Homonia shrubs along	Location	Island downstream of Kheang Leuk		
					Order	Family	Species	Score
					Ephemeroptera	Baetidae	<i>Baetis</i> sp.	5
							<i>Cloeon</i> sp	
					Odonata	Libellulidae	<i>Miathyria marcella</i>	5
					Hemiptera	Notonectidae	<i>Notonects</i> sp	5

No	Date sampled	Name	GPS no	Point description	Macroinvertebrates found			
								20° 1.742'N 102° 13.181'E
					Veneroidae	Corbiculidae	<i>Corbicula sp</i>	3
							Total	26
							Average	5.2

Score scale	River health level
10.0 – 7.0	Good
6.9 – 3.1	Fair
3.0 – 1.0	Poor
0	No life at all

APPENDIX 2: GOOGLE EARTH IMAGES OF HABITAT SAMPLING LOCATIONS

Don Tu



Khon Phi Luang



Chong Xai



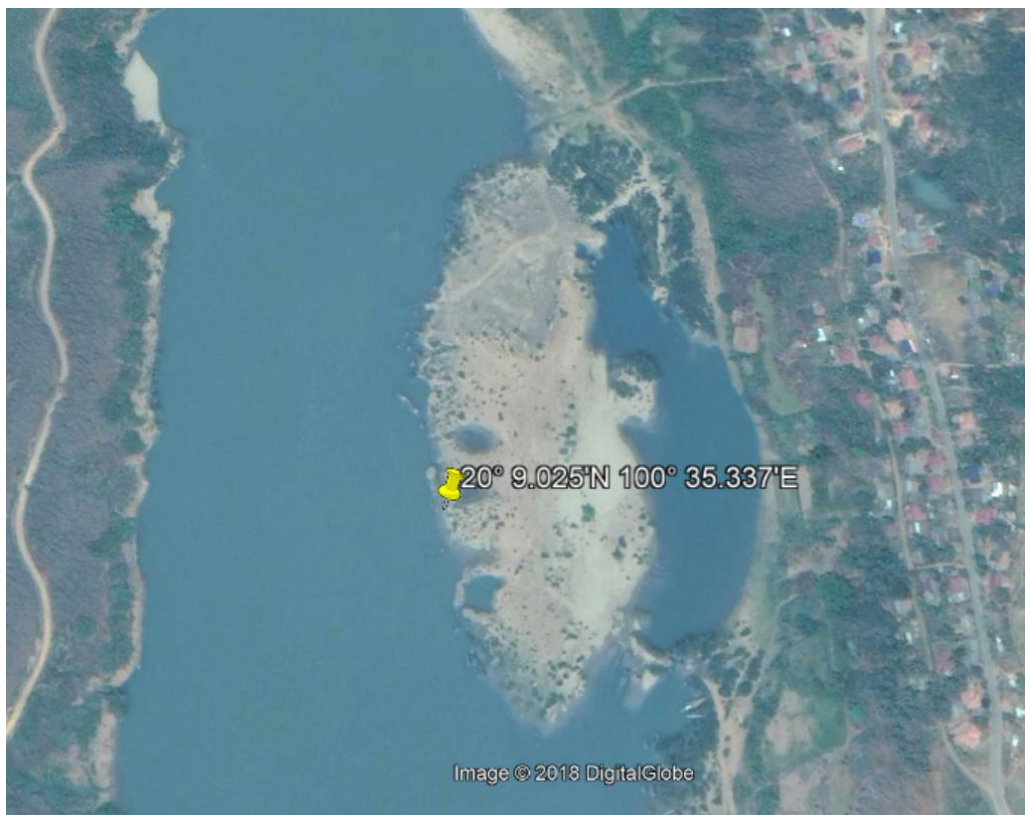
Don Ngao 1 - shallow pool left in sand & Don Ngao 2 – leading edge grasses in water



Khon Kham island



Ban Houay Thong 1 – river & Ban Houay Thong 2 – pond 10 m from river



Kheang Phak



Houay Khouak downstream of Khon Din



Houay En



Ban Khokkham



Island downstream of Kheang Leuk



APPENDIX 3: POTENTIAL REDLISTED MACROINVERTEBRATE SPECIES OCCURRING IN UPPER MEKONG

	Species name	Common name	Redlist status
BIVALVIA	Corbicula baudoni		DD
BIVALVIA	Corbicula blandiana		LC
BIVALVIA	Corbicula iravadica		LC
BIVALVIA	Corbicula siamensis		DD
BIVALVIA	Corbicula tenuis		DD
BIVALVIA	Cristaria plicata		DD
BIVALVIA	Ensisdens ingallsianus		LC
BIVALVIA	Limnoperna fortunei	Golden mussel	LC
BIVALVIA	Parreysia humilis		DD
BIVALVIA	Physunio superbus		LC
BIVALVIA	Pisidium casertanum		LC
BIVALVIA	Pisidium clarkeanum		LC
BIVALVIA	Pisidium javanum		LC
BIVALVIA	Pisidium nevillianum		LC
BIVALVIA	Pseudodon inoscularis		LC
BIVALVIA	Radiatula pilata		LC
BIVALVIA	Scabies crispata		LC
BIVALVIA	Sinanodonta woodiana	Chinese Pond Mussel	LC
BIVALVIA	Uniandra contradens		LC
GASTROPODA	Anulotaia mekongensis		DD
GASTROPODA	Bithynia funiculata		LC
GASTROPODA	Bithynia morleti		DD
GASTROPODA	Bithynia pulchella		LC
GASTROPODA	Brotia cylindrus		DD
GASTROPODA	Brotia siamensis		DD
GASTROPODA	Faunus ater		LC
GASTROPODA	Ferrissia siamensis		DD
GASTROPODA	Ferrissia verruca		LC
GASTROPODA	Gyraulus convexiusculus		LC
GASTROPODA	Gyraulus siamensis		LC
GASTROPODA	Hydrobioides nassa		LC
GASTROPODA	Idiopoma doliaris		LC
GASTROPODA	Idiopoma ingallsiana		LC
GASTROPODA	Indoplanorbis exustus		LC
GASTROPODA	Intha umbilicalis		LC
GASTROPODA	Lacunopsis minuta		LC
GASTROPODA	Lymnaea luteola		LC
GASTROPODA	Pila polita		LC
GASTROPODA	Plotia scabra		LC
GASTROPODA	Polypylis hemisphaerula		LC



	Species name	Common name	Redlist status
GASTROPODA	Radix auricularia		LC
GASTROPODA	Stenothyra hybocystoides		LC
GASTROPODA	Tarebia granifera		LC
INSECTA	Aciagrion azureum		LC
INSECTA	Aciagrion borneense		LC
INSECTA	Aciagrion hisopa		LC
INSECTA	Aciagrion occidentale		LC
INSECTA	Aciagrion tillyardi		LC
INSECTA	Acisoma panorpoides	Grizzled Pintail	LC
INSECTA	Aethriamanta aethra		LC
INSECTA	Aethriamanta brevipennis		LC
INSECTA	Aethriamanta gracilis		LC
INSECTA	Agriocnemis clauseni		LC
INSECTA	Agriocnemis femina		LC
INSECTA	Agriocnemis lacteola		LC
INSECTA	Agriocnemis minima		LC
INSECTA	Agriocnemis nana		LC
INSECTA	Agriocnemis pygmaea	Wandering Midget	LC
INSECTA	Agrioptera insignis		LC
INSECTA	Amphiallagma parvum		LC
INSECTA	Anaciaeschna jaspidea		LC
INSECTA	Anax guttatus		LC
INSECTA	Anax immaculifrons	Magnificent Emperor	LC
INSECTA	Anax indicus		LC
INSECTA	Anax nigrofasciatus	Blue-spotted Emperor	LC
INSECTA	Anax panybeus		LC
INSECTA	Anisopleura furcata		LC
INSECTA	Anisopleura subplatystyla		LC
INSECTA	Anotogaster gregoryi		LC
INSECTA	Archibasis oscillans		LC
INSECTA	Argiocnemis rubescens		LC
INSECTA	Bayadera hyalina		VU
INSECTA	Brachydiplax chalybea		LC
INSECTA	Brachydiplax farinosa		LC
INSECTA	Burmagomphus divaricatus		LC
INSECTA	Burmagomphus insolitus		DD
INSECTA	Burmagomphus williamsoni		LC
INSECTA	Burmargiolestes melanothorax		LC
INSECTA	Calicnemia erythromelas		LC
INSECTA	Calicnemia eximia		LC
INSECTA	Calicnemia miles		LC



	Species name	Common name	Redlist status
INSECTA	Cercion malayanum		LC
INSECTA	Ceriagrion auranticum	Orange-tailed Sprite	LC
INSECTA	Ceriagrion azureum		LC
INSECTA	Ceriagrion cerinorubellum		LC
INSECTA	Ceriagrion fallax		LC
INSECTA	Ceriagrion indochinense		LC
INSECTA	Ceriagrion malaisei		LC
INSECTA	Ceriagrion olivaceum		LC
INSECTA	Ceriagrion praetermissum		LC
INSECTA	Chlorogomphus yokoi		DD
INSECTA	Coeliccia chromothorax		LC
INSECTA	Coeliccia didyma		LC
INSECTA	Coeliccia loogali		LC
INSECTA	Coeliccia montana		DD
INSECTA	Coeliccia poungyi		LC
INSECTA	Coeliccia scutellum		LC
INSECTA	Copera ciliata		LC
INSECTA	Copera marginipes		LC
INSECTA	Copera vittata		LC
INSECTA	Cratilla lineata		LC
INSECTA	Cratilla metallica		LC
INSECTA	Crocothemis erythraea	Broad Scarlet	LC
INSECTA	Crocothemis servilia	Oriental Scarlet	LC
INSECTA	Davidius fruhstorferi		LC
INSECTA	Diplacodes nebulosa		LC
INSECTA	Diplacodes trivialis		LC
INSECTA	Drepanosticta anascephala		LC
INSECTA	Dysphaea gloriosa		LC
INSECTA	Epophthalmia frontalis		LC
INSECTA	Epophthalmia vittigera		LC
INSECTA	Euphaea masoni		LC
INSECTA	Euphaea ochracea		LC
INSECTA	Gomphidia abbotti		LC
INSECTA	Gomphidictinus perakensis		LC
INSECTA	Gynacantha basiguttata		LC
INSECTA	Gynacantha bayadera		LC
INSECTA	Gynacantha incisura		LC
INSECTA	Gynacantha saltatrix		LC
INSECTA	Gynacantha subinterrupta		LC
INSECTA	Heliaeschna uninervulata		LC
INSECTA	Heliogomphus selysi		LC



	Species name	Common name	Redlist status
INSECTA	Heliogomphus svihleri		DD
INSECTA	Hydrobasileus croceus		LC
INSECTA	Hylaeothemis clementia		LC
INSECTA	Ictinogomphus rapax		LC
INSECTA	Idionyx optata		NT
INSECTA	Idionyx selysi		LC
INSECTA	Indaeschna grubaueri		LC
INSECTA	Indocnemis orang		LC
INSECTA	Indothemis carnatica		NT
INSECTA	Indothemis limbata		LC
INSECTA	Ischnura aurora	Gossamer Damselfly	LC
INSECTA	Ischnura rufostigma		LC
INSECTA	Ischnura senegalensis	Common Bluetail	LC
INSECTA	Lathrecista asiatica		LC
INSECTA	Leptogomphus gestroi		LC
INSECTA	Lestes concinnus		LC
INSECTA	Lestes dorothea		LC
INSECTA	Lestes elatus	Emerald Spreadwing	LC
INSECTA	Lestes nodalis		LC
INSECTA	Lestes praemorsus		LC
INSECTA	Lestes thoracicus		LC
INSECTA	Lestes viridulus		LC
INSECTA	Libellago lineata		LC
INSECTA	Lyriothemis biappendiculata		LC
INSECTA	Lyriothemis bivittata		LC
INSECTA	Lyriothemis cleis		LC
INSECTA	Macrodiplax cora	Cora	LC
INSECTA	Macrogomphus borikhanensis		DD
INSECTA	Macrogomphus kerri		DD
INSECTA	Macromia chaiyaphumensis		LC
INSECTA	Macromia cupricincta		LC
INSECTA	Macromia flavocolorata		LC
INSECTA	Macromia moorei		LC
INSECTA	Macromia pinratani		LC
INSECTA	Macromia pyramidalis		DD
INSECTA	Macromia septima		DD
INSECTA	Macromidia genialis		LC
INSECTA	Macromidia rapida		LC
INSECTA	Merogomphus parvus		LC
INSECTA	Mesopodagrion tibetanum		LC
INSECTA	Merogomphus pavici		LC



	Species name	Common name	Redlist status
INSECTA	Microgomphus chelifer		LC
INSECTA	Mnais andersoni		LC
INSECTA	Mortonagrion aborense		LC
INSECTA	Nannophya pygmaea		LC
INSECTA	Nepogomphus walli		LC
INSECTA	Neurobasis chinensis		LC
INSECTA	Neurothemis fluctuans		LC
INSECTA	Neurothemis fulvia		LC
INSECTA	Neurothemis intermedia		LC
INSECTA	Neurothemis tullia		LC
INSECTA	Nychogomphus duaricus		LC
INSECTA	Onychargia atrocyana		LC
INSECTA	Onychogomphus castor		DD
INSECTA	Onychogomphus risi		DD
INSECTA	Onychothemis culminicola		LC
INSECTA	Onychothemis testacea		LC
INSECTA	Orchithemis pulcherrima		LC
INSECTA	Orientogomphus circularis		DD
INSECTA	Orolestes selysi		LC
INSECTA	Orthetrum chrysis		LC
INSECTA	Orthetrum luzonicum		LC
INSECTA	Orthetrum japonicum		LC
INSECTA	Orthetrum pruinosum		LC
INSECTA	Orthetrum sabina	Slender Skimmer	LC
INSECTA	Palpopleura sexmaculata		LC
INSECTA	Pantala flavescens	Globe Skimmer	LC
INSECTA	Paracercion calamorum	Dusky Lilysquatter	LC
INSECTA	Paragomphus capricornis		LC
INSECTA	Periaeschna nocturnalis		LC
INSECTA	Phaenandrogomphus tonkinicus		LC
INSECTA	Platylestes platystylus		LC
INSECTA	Polycanthagyna erythromelas		LC
INSECTA	Prodasineura auricolor		LC
INSECTA	Prodasineura autumnalis	Black Threadtail	LC
INSECTA	Prodasineura verticalis		LC
INSECTA	Pseudagrion australasiae		LC
INSECTA	Pseudagrion microcephalum	Blue Sprite	LC
INSECTA	Rhinocypha biforata		LC
INSECTA	Rhinocypha fenestrella		LC
INSECTA	Rhinocypha iridea		LC
INSECTA	Rhinocypha perforata	Common Blue Jewel	LC



	Species name	Common name	Redlist status
INSECTA	Rhinocypha quadrimaculata		LC
INSECTA	Rhodothemis rufa		LC
INSECTA	Rhyothemis obsolescens		LC
INSECTA	Rhyothemis phyllis		LC
INSECTA	Rhyothemis plutonia		LC
INSECTA	Rhyothemis triangularis		LC
INSECTA	Rhyothemis variegata		LC
INSECTA	Tetracanthagyna plagiata		LC
INSECTA	Tetracanthagyna waterhousei		LC
INSECTA	Tetrathemis platyptera		LC
INSECTA	Tholymis tillarga	Old World Twister	LC
INSECTA	Tramea basilaris	Keyhole Glider	LC
INSECTA	Trithemis aurora		LC
INSECTA	Trithemis festiva	Indigo Dropwing	LC
INSECTA	Trithemis pallidinervis	Dancing Dropwing	LC
INSECTA	Tyriobapta torrida		LC
INSECTA	Urothemis signata		LC
INSECTA	Vestalaria smaragdina		LC
INSECTA	Vestalis amoena		LC
INSECTA	Vestalis gracilis		LC
INSECTA	Zygonyx iris		LC
INSECTA	Zyxomma petiolatum		LC
MALACOSTRACA	Esanthelephusa dugasti		LC
MALACOSTRACA	Indochinamon lipkei		DD
MALACOSTRACA	Indochinamon prolatum		DD
MALACOSTRACA	Mekhongthelephusa brandti		LC
MALACOSTRACA	Neolarnaudia buesekomae		LC
MALACOSTRACA	Pupamon pealianoides		DD



APPENDIX 4: SUMMARY DESCRIPTION OF THE 10 KM REACHES BETWEEN CHIANG SAEN AND LUANGPRABANG

Reach No	Key points	Left bank features	Channel features	Right bank features
ZONE 1 Golden triangle to the Thai-Lao border/ Pak Tha – (approx 98km) – 5 dangerous areas				
1	10km downstream from Golden Triangle; Special Economic Zone on Lao PDR side	Stone embankments along SEZ area; Small stone groins common; Sand/natural bank opposite Chiang Saen town; vegetated mountain ridge behind floodplain;	Vegetated sand/ gravel islands; Agriculture and small shelters/ dwellings on sand island (corn, bananas); three medium vegetation sand islands close to the right bank - one with some agriculture; GT rapids - A62/ K237; 500m wide ave.	Nam Mae Khan tributary at the GT; Stone embankments along SEZ area; gravel/ concrete embankment (from sand islands down); Reclaimed land/ blocked side channel just north of Chiang Saen town with large white stone embankment on downstream side of blocked side channel; Mae Sua Waterfall Forest Park
2	Start at Chaing Sean	Natural earth/ vegetated bank; banannas; small trib entering south of Chaing Sean	large vegetated sand island close to left bank at the start of the section; 2 small sand islands downstream of new port close to right bank and 2 smaller islands close to left bank; 500m wide ave.	Stone hardened embankment; Nat. earth bank with erosion; agricultural fields; Nam Mae Kok River enters the Mekong at new port
3	Simuangngam town on Lao side	Erosion (edge of banana plantation); Silver bark trees (flower in Jan); some banannas; trib/ Doi Luang Pae Muang wetland	2 medium vegtated sand islands + 1 small bare sand island; Ban Saeo rapids - A67/ K255; 600m wide ave.	Stone hardened embankment about 500m long; vegetated hills behind floodplain with agricultural plots; some bank hardening;
4	Mae Ngoen town on Thai side	Erosion of earth bank – 60m long and 7m high (banana fields); Small gravel groins @ regular intervals; some larger ones with irrigation intakes for banana fields; bannana fields	Saen To (Stump) Rapids A71/ K270.1; Upper Pa Pun Rapids/ A72/ K274.5; 600m wide ave.	Teak and rubber plantations; agricultural plots on broad floodplain at river bend; forested hill; small trib entering; some bank hardening;
5	Nam Keung Mai town on Lao side	Some gold panning and submerged rocks; small trib entering 200m downstream of Nam Keung trib; teak/ rubber plantations	many small sand islands and island terrace; Pa Pun Rapids/ A72/ K276.1; Kon Pi Luang rapids - A73/ K280.8; 400m wide ave.	Bank hardening works underway half way down; Stone hardened embankment under construction about 1km long near end of section at the Rai Saeng Arun Resort; teak/ rubber plantations; some bank hardening;

Reach No	Key points	Left bank features	Channel features	Right bank features
6	B. Nam Yone on Lao side	Stone quarry; Road building with cut and fill slopes; trib Nam Ngam 1; trib Nam Ngam 2; rocky outcrop; sand bar/ terrace; teak/ rubber plantations	Luk Sao Chao Anuvong rapids/ A75/ K286.8; some rocky outcrop; narrow channel; Hat Ngao (DA-01) rapid; 300m wide ave.	teak/ rubber plantations; some bank hardening; bank hardening works on bend at Hat Ngao;
7	Houay Tap	teak/ rubber plantations	Kaeng Kai rapids/ A76/ K293.9; Jong Chai rapids - A77/ K293.9; rocky outcrop; mid stream sand island; 300m wide ave.	small trib entering; teak/ rubber plantations; some bank hardening;
8	Chiang Khong/ Houayxay	dwellings/ agriculture; significant floodplain valley and extending south west into Thailand	seven sand islands; 600m wide ave.	Nam Mae Ing trib enters; dwellings/ agriculture; bridge across channel; some bank hardening;
9	Pha Oudom on Lao side	forested hills; rocky outcrop on banks; sand terrace on bend; banannas	some rocky outcrop; Khone Ian (DA-02) rapid; 500m wide ave.	some bank hardening; forested hills; rocky outcrop on banks
10	Muang Yai on Thai side; Thai-Lao border moves away from the river	bananas; teak/ rubber plantations;	a vegetated isalnd present; rocky outcrop common; Khone Kham (DA-03) rapid; Keng Khone (DA-04) rapid; Keng Nhoy (DA-05) rapid; 500m wide ave.	teak/ rubber plantations; some bank hardening;
ZONE 2 From the Thai-Lao border/ Pak Tha to Pak Beng Dam – (approx 94km) – 6 dangerous areas; dam = 62 m, reservoir =96 km long				
11	Pak Tha	hilly forested terrain; teak/ rubber plantations; Nam Tha tributary coming in at Pak Tha; natural banks; Natural vegetation and agriculture/ river bank gardens	some rocky outcrop; 300m wide ave.	hilly forested terrain; teak/ rubber plantations; natural banks; Natural vegetation and agriculture/ river bank gardens
12	Mekong runs south	hilly forested terrain; teak/ rubber plantations; some small villages; natural banks; Natural vegetation and agriculture/ river bank gardens	some rocky outcrop; 300m wide ave.	hilly forested terrain; teak/ rubber plantations; some small villages; natural banks
13	Mekong runs south	hilly forested terrain; teak/ rubber plantations; some small villages; natural banks	some rocky outcrop; 350m wide ave.	hilly forested terrain; teak/ rubber plantations; some small villages; natural banks; Natural vegetation and agriculture/ river bank gardens

Reach No	Key points	Left bank features	Channel features	Right bank features
14	Mekong turns east	hilly forested terrain; teak/ rubber plantations; some small villages; natural banks; Natural vegetation and agriculture/ river bank gardens	significant rocky outcrop; narrow channel; Keng Phak (DA-05A) rapid; 200m wide ave.	hilly forested terrain; teak/ rubber plantations; some small villages; natural banks; Natural vegetation and agriculture/ river bank gardens
15	Ban Pakkhop/ Ban Khomery	small trib enters; teak/ rubber plantations; some small villages; Natural sandy/ rocky banks; Roads on both sides	significant rocky outcrop; narrow channel; Keng Beun (DA-06) rapid; 100m wide ave.	teak/ rubber plantations; some small villages; Natural sandy/ rocky banks; road follows river;
16	border btwn Bokeo and Oudomxay and Xayabouly provinces follows the river	Steeper slopes – particularly on the left bank near Khon Din; Natural sandy/ rocky banks; Roads on both sides	Khon Din (DA-07) rapid; narrow channel; 150m wide ave.	Natural sandy/ rocky banks; Steeper slopes; some small villages; small trib entering; road follows river;
17		steep vegetated slopes; rocky banks; 2 small trib entering; road follows river;	narrow and rocky; 150m wide ave.	steep vegetated slopes; rocky banks
18		steep vegetated slopes; rocky banks; road follows river;	Keng Khone Sa Nak (DA-09A) rapid; narrow and rocky; 150m wide ave.	steep vegetated slopes; rocky banks
19	Pak Beng dam site	steep vegetated slopes; rocky banks;	Keng Lae (DA-09B) and Keng Kep (DA-10); narrow and rocky; 180m wide ave.	steep vegetated slopes; rocky banks; bank side road construction at dam site
ZONE 3 Pak Beng Dam downstream to Luang Prabang (approx 176km) – 12 dangerous areas				
20	Road bridge	steep vegetated slopes; rocky banks; road follows river; teak/ rubber plantations	some sand islands; road bridge crosses the channel; 200m wide ave.	steep vegetated slopes; rocky banks; road follows river; teak/ rubber plantations
21	Pak Beng	steep vegetated slopes with plantations; rocky banks; road follows river; trib enters after Pak Beng	narrow and rocky; 150m wide ave.	steeper vegetated slopes; rocky banks;
22		steep vegetated slopes with plantations; rocky banks; road follows river	narrow and rocky; some sandy banks; 180m wide ave.	steeper vegetated slopes; rocky banks;

Reach No	Key points	Left bank features	Channel features	Right bank features
23		steep vegetated slopes with plantations; rocky banks; road follows river	narrow and rocky;	steep vegetated slopes; rocky banks; small trib entering
24	Thasuang	steep vegetated slopes; rocky banks;	Keng En (DA--12) rapid; Keng Xick Khan (DA-13) rapid; Keng Xick Ok (DA-13A) rapid; narrow and rocky;	steep vegetated slopes; rocky banks; 2 small trib entering
25		steep vegetated slopes; rocky banks;	narrow and rocky; 130m wide ave.	steep vegetated slopes; rocky banks; small trib entering
26		steep vegetated slopes;	narrow, less rocky outcrop; 230m wide ave.	steep vegetated slopes;
27	s-bend in river	steep vegetated slopes; rocky banks;	Keng Phouan (DA-14) rapid; narrow and rocky; 200m wide ave.	steep vegetated slopes; rocky banks;
28		steep vegetated slopes; rocky banks; small trib entering	DA-15 rapid; narrow and rocky; 200m wide ave.	steep vegetated slopes; rocky banks; small trib entering
29	border btwn Sayabouly and Louangphabang provinces	steep vegetated slopes; rocky banks; teak/ rubber plantations	DA-16 rapid; narrow and rocky; several rock outcrops; 250m wide ave.	steep vegetated slopes; rocky banks; teak/ rubber plantations
30		steep vegetated slopes; rocky banks; teak/ rubber plantations	Keng Hang Nhay (DA-17) rapid; Keng Lam Phay Nhay (DA-18) rapid; narrow and rocky; 300m wide ave.	steep vegetated slopes; rocky banks; teak/ rubber plantations; small trib entering;
31		steep vegetated slopes; rocky banks; teak/ rubber plantations; road follows river	narrow and rocky; 150m wide ave.	steep vegetated slopes; rocky banks; teak/ rubber plantations; small trib entering;
32		steep vegetated slopes; rocky banks; teak/ rubber plantations; small trib entering;	Keng Lam Phay Noy (DA-19) rapid; narrow and rocky; 150m wide ave.	steep vegetated slopes; rocky banks; teak/ rubber plantations; small trib entering;
33	Khoc Phou	steep vegetated slopes; rocky banks; teak/ rubber plantations; road follows river	Keng Khen (DA-20) rapid; narrow and rocky; 200m wide ave.	steep vegetated slopes; rocky banks; teak/ rubber plantations; 2 small trib entering;

Reach No	Key points	Left bank features	Channel features	Right bank features
34	Lat Han	steep vegetated slopes; rocky banks; teak/ rubber plantations; small trib entering at Lat Han;	narrow and rocky; 200m wide ave.	steep vegetated slopes; rocky banks; teak/ rubber plantations; small trib entering;
35	Pak Ou	Nam Ou trib entering at Pak Ou; steep vegetated slopes; rocky banks; teak/ rubber plantations	Keng Oy (DA-21) rapid; Keng Leuk (DA-22) rapid; very rocky; 400m wide ave.	steep vegetated slopes; rocky banks; teak/ rubber plantations;
36	Pakxeuang	Nam Xuang trib enters at Pakxeuang; steep vegetated slopes; rocky banks; teak/ rubber plantations; increasing urban dev	rocky; large vegetated rocky island with some ag just upstream of Nam Xuang trib; 400m wide ave.	vegetated slopes; rocky banks; teak/ rubber plantations; increasing urban dev
37	Pha O/ Luang Prabang	heavily urbanised; Nam Khan trib enters at Luang Prabang;	broader with some sand islands; 600m wide ave.	teak/ rubber plantations om hills;

ZONE 1 GOLDEN TRIANGLE TO THE THAI-LAO BORDER (PAK THA)

REACH ID 1, KILOMETRE 0 – 10



REACH ID 2, KILOMETRE 10 – 20



REACH ID 3, KILOMETRE 20 – 30



North



REACH ID 4, KILOMETRE 30 – 40



North



REACH ID 5, KILOMETRE 40 – 50



REACH ID 6, KILOMETRE 50 – 60



REACH ID 7, KILOMETRE 60 – 70



North



REACH ID 8, KILOMETRE 70 – 80



North



REACH ID 9, KILOMETRE 80 – 90



North



REACH ID 10, KILOMETRE 90 – 100



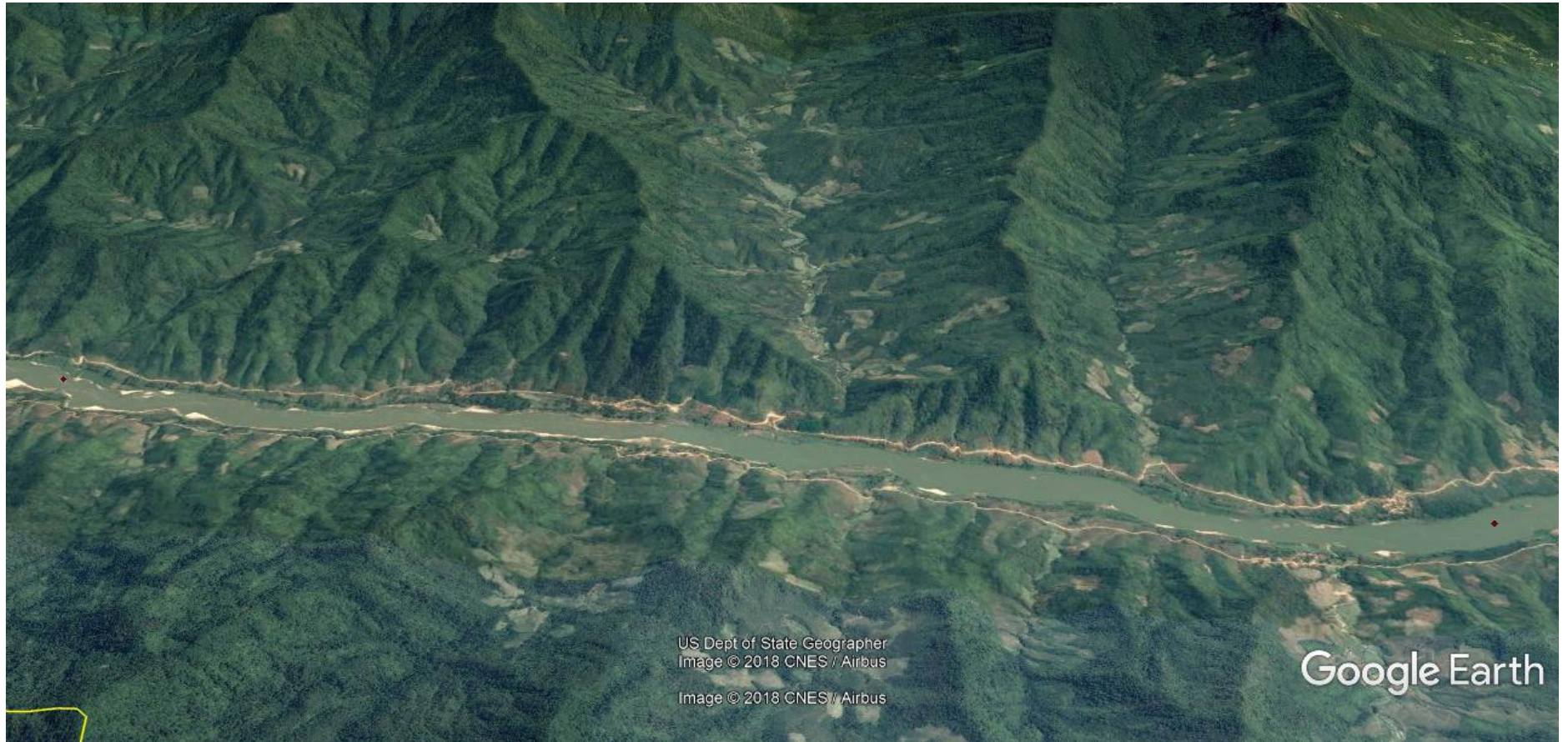
ZONE 2 FROM THE THAI-LAO BORDER (PAK THA) TO PAK BENG DAM

REACH ID 11, KILOMETRE 100 – 110



North
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REACH ID 12, KILOMETRE 110 – 120



North
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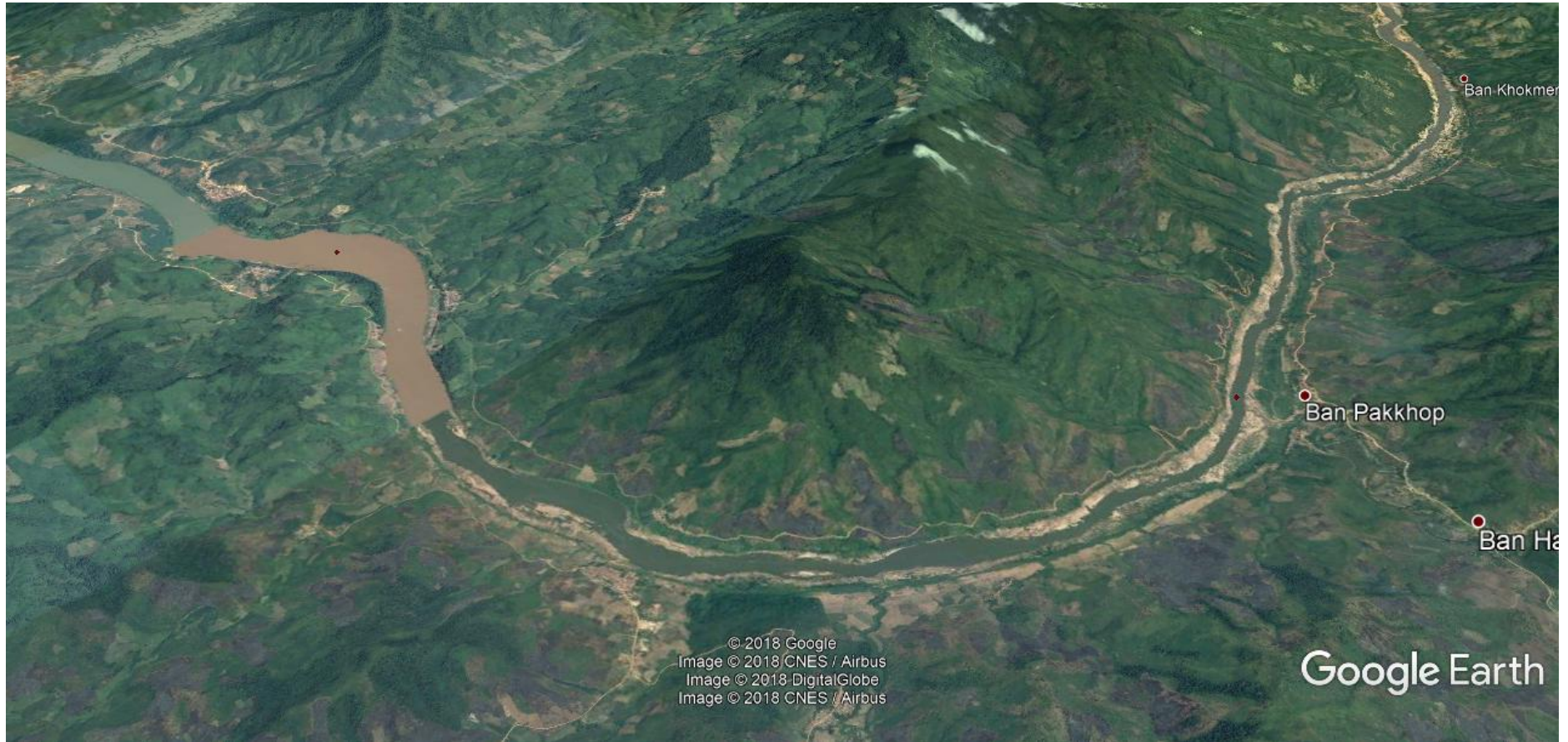
REACH ID 13, KILOMETRE 120 – 130



North



REACH ID 14, KILOMETRE 130 – 140



North



REACH ID 15, KILOMETRE 140 – 150



REACH ID 16, KILOMETRE 150 – 160



REACH ID 17, KILOMETRE 160 – 170



REACH ID 18, KILOMETRE 170 – 180



REACH ID 19, KILOMETRE 180 - 190



North

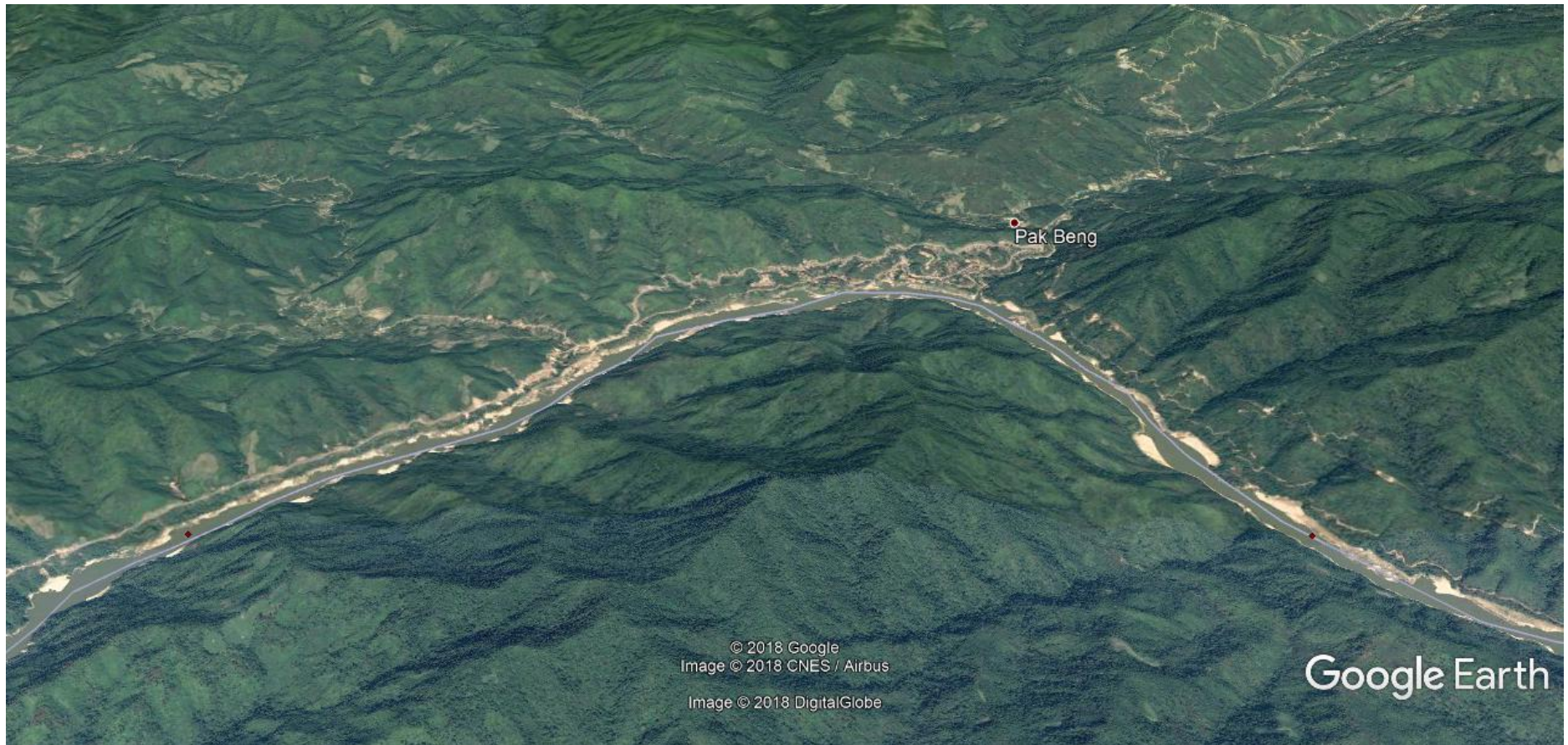


ZONE 3 PAK BENG DAM DOWNSTREAM TO LUANG PRABANG

REACH ID 20, KILOMETRE 190 – 200



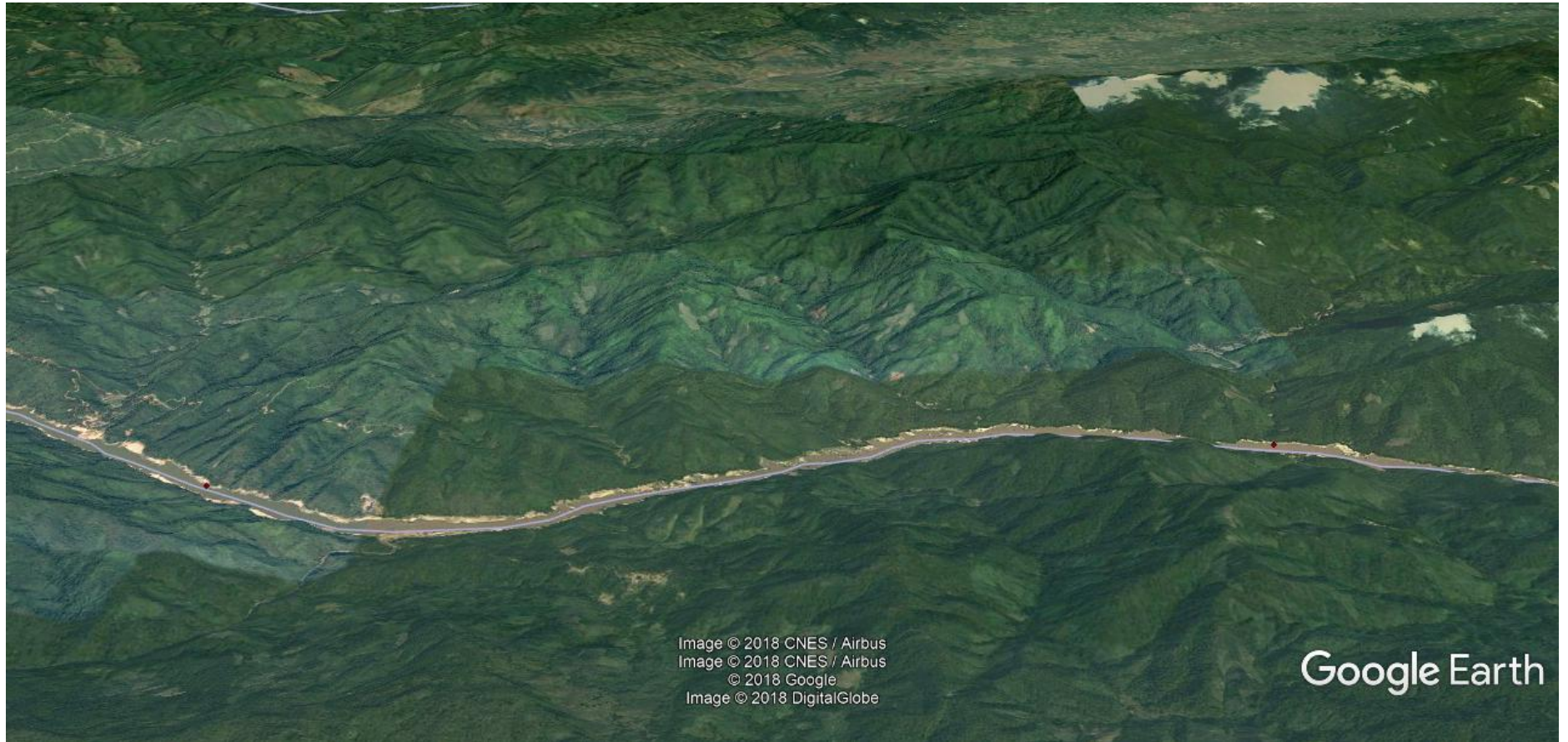
REACH ID 21, KILOMETRE 200 – 210



REACH ID 22, KILOMETRE 210 – 220



REACH ID 23, KILOMETRE 220 – 230



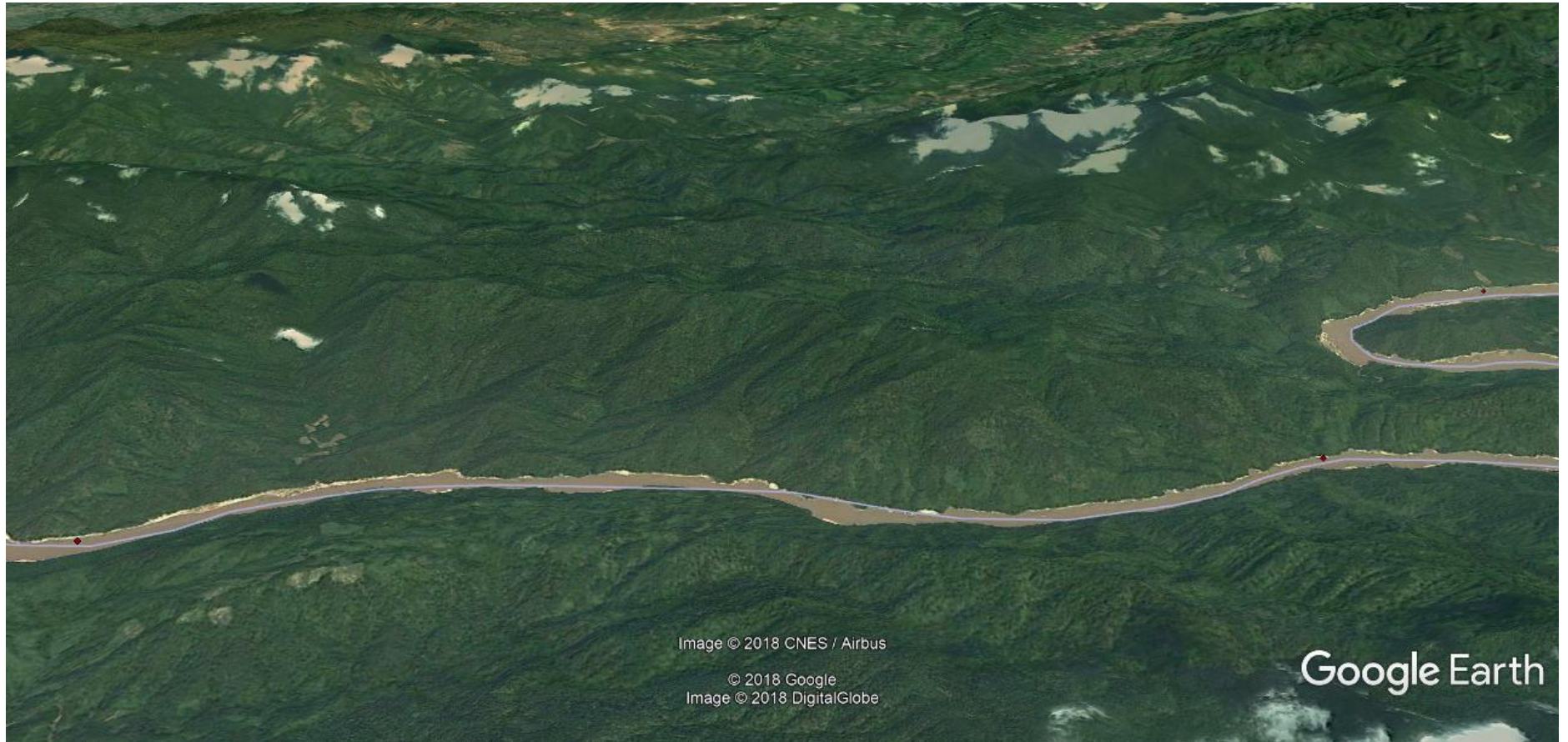
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REACH ID 25, KILOMETRE 240 – 250



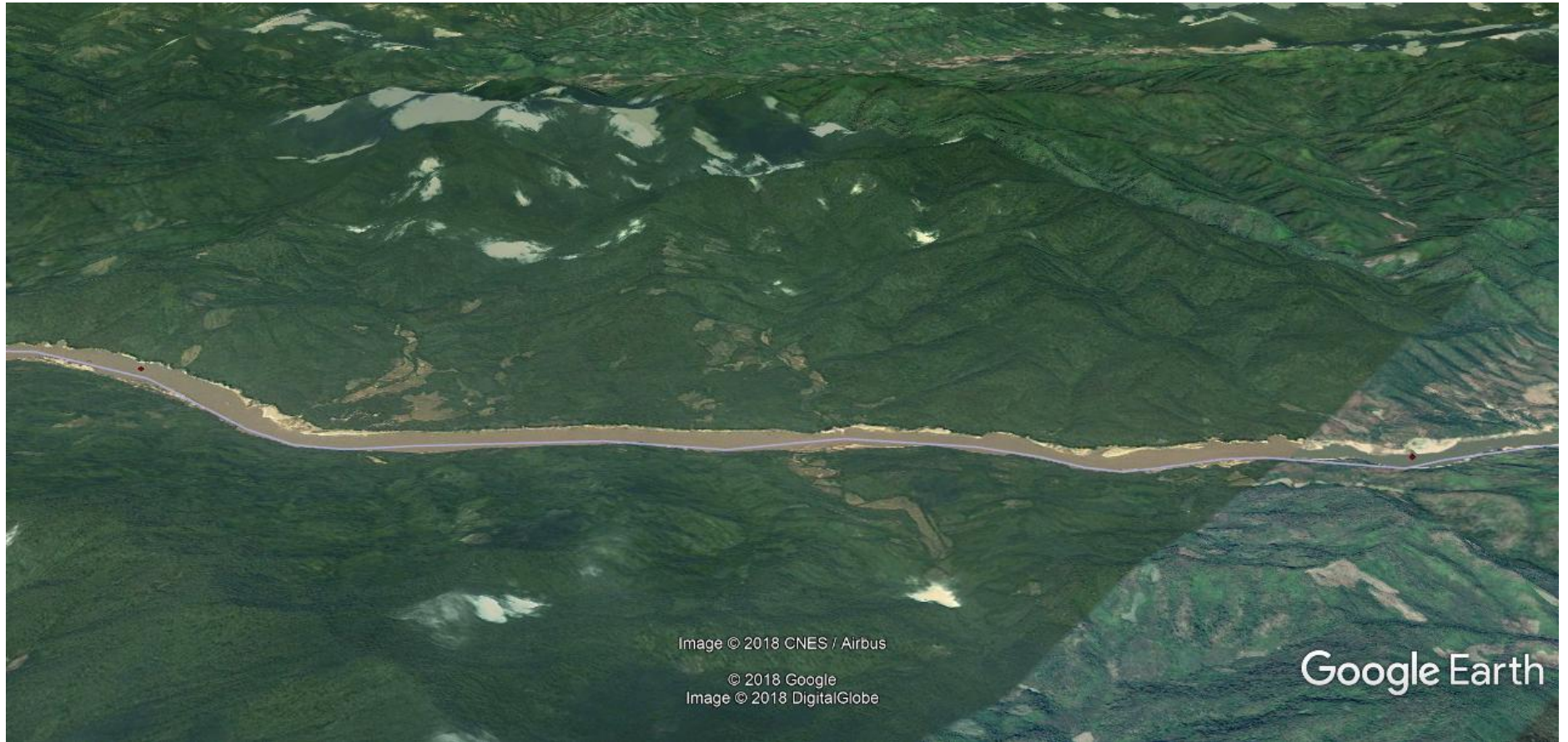
REACH ID 26, KILOMETRE 250 – 260



REACH ID 27, KILOMETRE 260 – 270



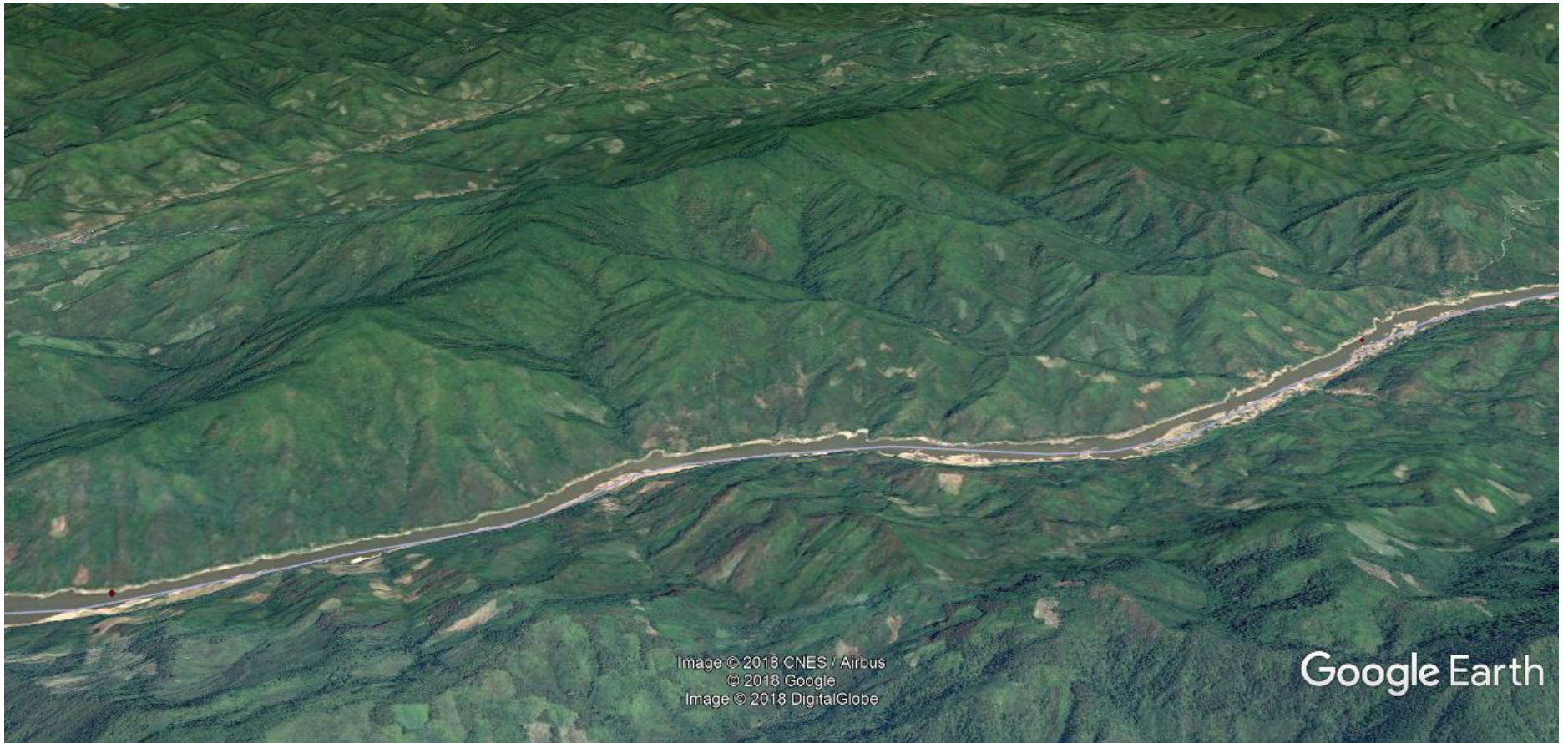
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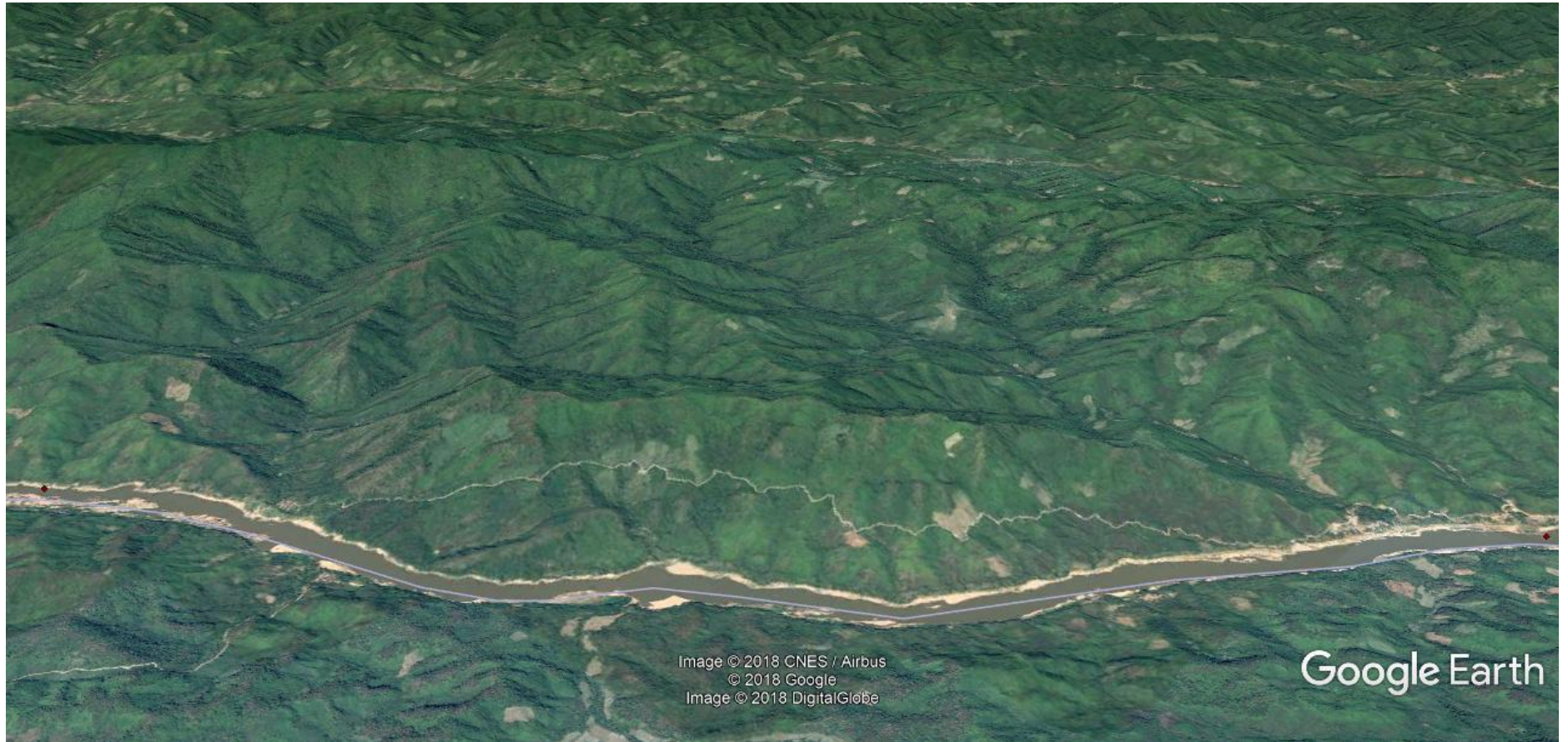
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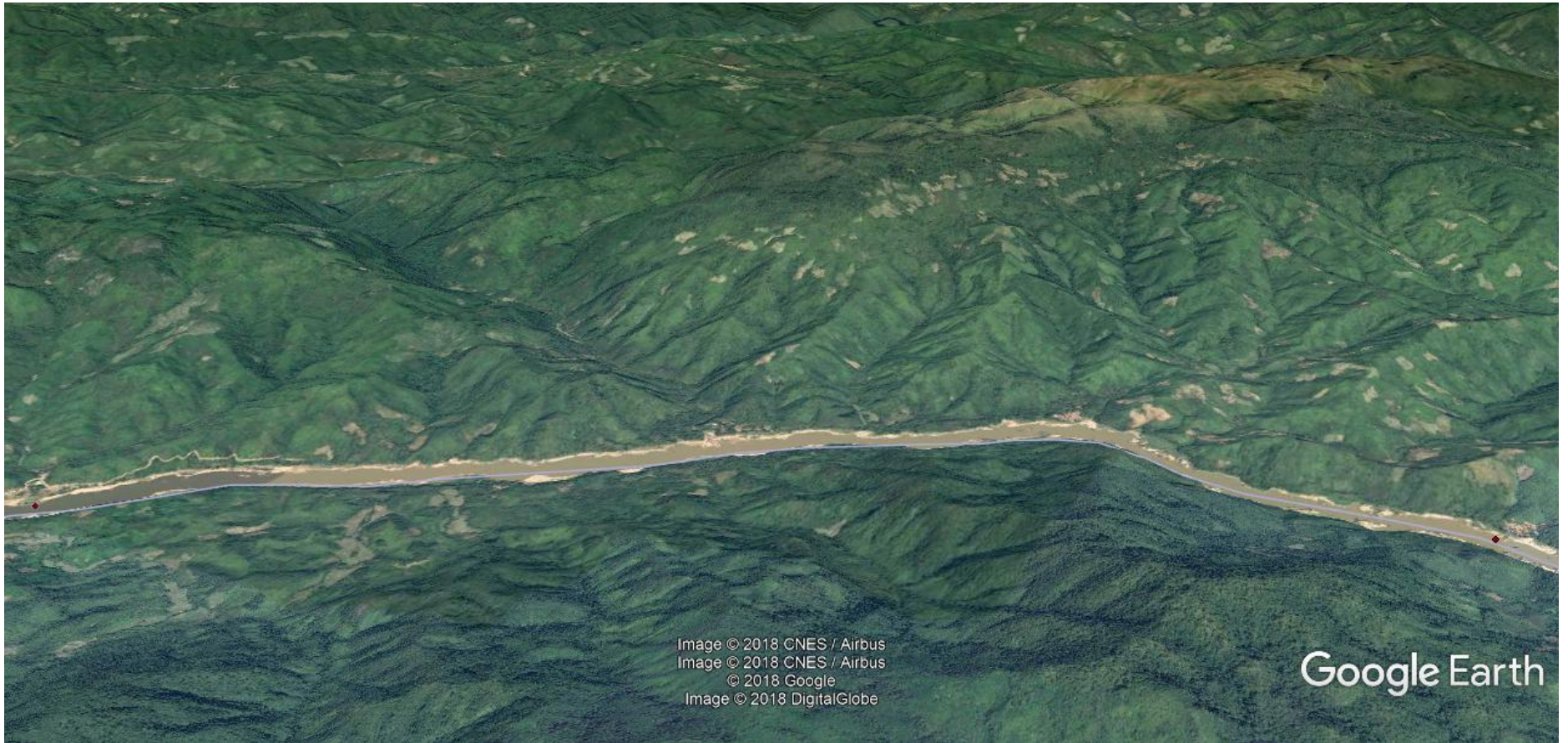
REACH ID 30, KILOMETRE 290 – 300



REACH ID 31, KILOMETRE 300 – 310



REACH ID 32, KILOMETRE 310 – 320



REACH ID 33, KILOMETRE 320 – 330



REACH ID 34, KILOMETRE 330 – 340



REACH ID 35, KILOMETRE 340 – 350



REACH ID 36, KILOMETRE 350 – 360



REACH ID 37, KILOMETRE 360 – 370





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