	ARAVAGGIO 2008 - CNR-IRSA, Italy, Core Assessment of River hAbitat VAlue and hydro-morpholoGlcal cOndition										page 1			
	River name Site Date													
	Transect 1 is at downstream end											secondary		
		GPS	<u> </u>							GPS		tick when		
	Spot-Check	10	9	8	7	6	5	4	3	2	1	finished pa	ge 1-2	
	· · · ·									Invertebrat	es sampling	9	-	
	Ai Banktop land-use and vegetation structure (UK_F) Left Banktop Criteria (Break in slope, Stable use, non-													
	hygrophilic Veg, Trashline, Rock cover discontinuous; Meander)												de	
	Banktop height (m)												i wi	
	Land-use: choose one from <u>nat.</u> BL, CW, MM, MN, MH, SH, RO, T		, WL; <u>agr.</u> B	P, CP, EU,	PO, OR, O	L, VI, TL, RF	P, WM, RF,	FM; <u>urb.</u> UI	R, IN, WT, M	IR, SR, RO,	WR, SU,		า a 10 m transect	
	RA, QU, PG, AW; nv] - see Spot-Check key page 2 of Form page 3 Land-use within 5m of Left Banktop	3											a 1(ans	
	Left Banktop (B, U, S, C)(circle if not homogeneous)												in : tr:	
	Width of the Vegetation strip (m; >m)												within a 10 m wide transect	
¥	Left Bank Face (B, U, S, C)(circle if not homogeneous)												5	
Bai	Extension of Bank Face (m)													
Left Bank	B _I Physical attributes - Left Bank (UK_E)													
	Marginal&Bank features: Slope (Vert., Steep,	******											ide	
	Gentle)/(NV, NO, Co v fluence, Nat. Berm, Art. Berm)												i wi	
	Berm/Floodplain width (m)	*	•*	•*	*	*	•*	*	*	*			n a 1 m transect	
	Berm/Floodplain height (m)												an an	
	Bank Modification (NK, NO, RS, RI(N), RT(N), RE(N), PC(B), EM, TR)												within a 1 m wide transect	
	Material (NV, BE, BO, CO, GS, EA, PE, CL - CC, SP, WP, GA,													
	BR, RR, TD, FA, LR , BI, CW)	*****	******	*****	*****	and the second second	******	*****	*****	and the second second	and the second sec			
	A _r Banktop land-use and vegetation struct	ure (UK	F)						,					
	Right Banktop Criteria (Break in slope, Stable use, non-		,						1				0	
	hygrophilic Veg, Trashline, Rock cover discontinuous; Meander)												within a 10 m wide transect	
	Banktop height (m)												t u	
Right Bank	Land-use: choose one from <u>nat.</u> BL, CW, MM, MN, MH, SH, RO, T RA, QU, PG, AW; nv] - see Spot-Check key page 2 of Form page 3		, WL; <u>agr.</u> B	P, CP, EU,	PO, OR, O	L, VI, I L, RH	² , WM, RF,	FM; <u>urb.</u> UF	R, IN, W I , M	IR, SR, RO,	WR, SU,		n a 10 m transect	
	Land-use within 5m of Right Banktop												a ' ran	
	Right Banktop (B, U, S, C)(circle if not homogeneous)												t	
	Width of the Vegetation strip (m; >m)												wit	
	Right Bank Face (B, U, S, C)(circle if not homogeneous) Extension of Bank Face (m)													
ght	B, Physical attributes - Right Bank (UK_E)													
R									· · ·				a	
	Marginal&Bank features: Slope (Vert., Steep,												vid	
	Gentle)/(NV, NO, CoNfluence, Nat. Berm, Art. Berm)	*****	*****	*****	****		*****	****	erer a t		*****		sct v	
	Berm/Floodplain width (m)												n a 1 m transect	
	Berm/Floodplain height (m) Bank Modification (NK, NO, RS, RI(N), RT(N), RE(N),												within a 1 m wide transect	
	PC(B), EM, TR)												/ith	
	Material (NV, BE, BO, CO, GS, EA, PE, CL - CC, SP, WP, GA,	******	an and a state of the state of	TRAFFEFEFEFEFEFEFEFEFEFEFEFEFEFEFEFEFEFEF			TRAFFEFEFEFEFEFEFEFEFEFEFEFEFEFEFEFEFEFEF				ARRENT REAL		\$	
	BR, RR, TD, FA, LR , BI, CW)	*****	******	*****	*****	and a state of the	*****	******	*****	and a state of the	*****			
	C Number of selected channel features	una	una	chann		f due to th	ne presen	ce of arti	ficial		chann	chann	chann	
	(UK_C/K)	chann	chann	cha	manufacts)							cha	cha	
	C always accent		— = (> 33%) oi	W (Whole	e C ₂ - always count & position in Page 2							— E (> 33%) or	= W (Whole	
	C ₁ - always count		site)		-	•	-	osition	innage	-		site)		
	Riffle(s) Pool(s)					Flow (dr Nfluence								
	Island/Mature island(s)						`							
	Unvegetated point bar(s)				CB - Concave bar(s) AB - Alternate Bars (pairs)									
	Vegetated point bar(s)					insverse								
	Unvegetated side bar(s) Vegetated side bar(s)					dscarp(s annel Nic		leadcut						
	vegetated side bai(s)					oded allu								
e						as with E			n the cha	annel				
sit	N					er-deepe		annel						
Whole site	Notes					cal erosio								
Ž	D Extent of channel and bank features	chann	chann	chann	(Use /A if of artificial origin)						chann	chann	chann	
	(UK_K)	l ch	l ch	l chi	che che					l ch	l chi			
	Count if planned		— (> 33%) oi	W (Whole								— E (> 33%) or	W (Whole	
	Count if planned		site)		F							site)		
	Free fall Chute flow					d bedrock ed bedroc		ers						
	Broken standing waves					unvegeta			it(s)					
	Unbroken standing waves				Discrete	unvegeta	ated sand	d deposit						
	Rippled flow Upwelling				Ŭ,	ated silt o	deposit(s)						
	Opwelling Smooth flow				Eroding Stable c									
	No perceptible flow				Unvegetated mid-channel bar(s)									
	Marginal deadwater				Vegetated mid-channel bar(s)									
	Exposed boulders		<u> </u>	<u> </u>	<u> </u>									
		-		-			-	-					-	

CARAVAGGIO 2008 - CNR-IRSA, Italy			ot-che	.013								page 2
PHYSICAL ATTRIBUTES OF BANKS AND CHANN		E)	1	T		Tra	insect 1	is at do	ownstre	am end	long ≈ 5 t	imes wate
Water Sinuosity - <u>L</u> eft Bend, <u>S</u> traight, <u>R</u> ight Bend Spot-check		9	8	7	6	5	4	3	2	1	wi	idth
Number of wetted channels (threads)		5	0	, '	0	5		3	~		1	
E Erosion/Deposition features		SC or EB if	f compose	d of sandy	substrate	4	Į	<u> </u>	Į	<u> </u>		-
Left Bank (and close to)												
Erosion/Habitat (NV, NO, EC, SC, EB-Eroding Bank, ET-Er. bank Top only, EE-Er. bank toE only, TOe, LE-Local Erosion)							ARREST FRANKERS	ARREST FRANKERS	ARRANGER FRANK	ARRON BRANNER		
Deposition (NV, NO, PB(b), VP(b), SB(b), VS(b), Alternate Bars,	~	~	~		····				~~/			-
Concave Bar, BigBlock, Sand Dep., SParse dep.)/BB, AR	\sim											
Right Bank (and close to) Erosion/Habitat (NV, NO, EC, SC, EB-Eroding Bank, ET-Er, bank												
Top only, EE-Er. bank toE only, TOe, LE-Local Erosion)	an and a state of the state of	an and a state of the state of	******	an and a state of the state of	********	are and the second second	*****	*****	*****	*****		
Deposition (NV, NO, PB(b), VP(b), SB(b), VS(b), Alternate Bars,	\sim	\square										
Concave Bar, BigBlock, Sand Dep., SParse dep.)/BB, AR												
Main Channel (highest discharge) Deposition, mid-channel (NV, NO, RO, EB, VR, BigBlock, MB,												
VB, MI, MUltiple bars, SP) / <u>BB, AR</u>		and the second	*******	AND DE	APPERENT PROPERTY.	A.F. S.	*****	*****	*****	*****		
Wet channel position: Left-Center-Right (LCR)												
Water Width (m)												
Maximum water depth (m; >m)]	÷
Secondary Channel (most dissimilar from I channel)	ļ.,,	1		· · · · ·	بەر							sec
Deposition, mid-channel (NV, NO, RO, EB, VR, BigBlock, MB, VB, MI, MUltiple bars, SP) / <u>BB, AR</u>												ans
Wet channel position: Left-Center-Right (LCR)	Ĺ	Ĺ	e*-		**·	**· 		*** 				e ti
Water Width (m)				Ĺ							Ī	wid
Maximum water depth (m; >m)												Ε
Total Water Width (m)												within a 1 m wide transect
Total Channel Width (including bars; m)												hin
F Channel Habitat and Modification	10	9	8	7	6	5	4	3	2	1		wit
Main Channel (highest discharge) AR (√)												
Mesohabitat: pool (P) - riffle (R) - other (n)												
Channel Substrate (NV, BE, BO, CO, GP, SA, SI, CL, PE, RR, CC, AR)			ARREST FRANKERS	AN AND AND AND AND AND AND AND AND AND A	ARREST CONTRACTOR	ALARS AND AND AND A	APPERENCES			ARREST ARREST		
Flow type (FF, CH, BW, UW, CF, RP, UP, SM, NP, DR)	area area area area area area area area	*****	******				*****	*****	******	*****		
Channel modification(s) (NK, NO, CV, RS, RI, DA, FO, TR)	******	******	******	*****	*****	an the second second	******	*****	*****	*****		
Artificial/Natural feature Code & Position (I channel) -	am			1			1				Left E	
Sections C ₂ /G; Pic n°; see Spot-Check key, page 4 (circle Section G feat.	pstream	-	-		-	-		-	-	~	wnst	
if eroded); report water depth if OD	<u> </u>			1			1				Right 👸	-
Secondary Channel AR (tick)												
Backwater(b)/Artificial channel(a)												
Channel Substrate (NV, BE, BO, CO, GP, SA, SI, CL, PE, AR)	and the second sec	and the second second	and the state of t	ARRENT PROPERTY.	A. S.	A			******	******		
	and the second second											
Flow type (FF, CH, BW, UW, CF, RP, UP, SM, NP, DR)	are and a second	*****	*****				*****	*****	*****	*****		
Channel modification(s) (NK, NO, CV, RS, RI, DA, FO, RR, TR)	******	*****	******	an a same a s	THEFEFEEEEEEEEE	A.F.F.F.F.F.F.F.F.F.F.F.F.F.F.F.F.F.F.F	******	*****	*****	*****		
$\label{eq:action} Artificial/Natural feature Code & Position (I/II channel) \\ - Section C_2/G; Pic n^\circ; see Spot-Check key, page 4 (circle Section G feat. \\ - Code Code Code Code Code Code Code Code$	aam						1				Left	
 Section C₂/G; Pic n°; see Spot-Check key, page 4 (circle Section G feat. if eroded); report water depth if OD - ONLY RECORD IF NOT ALREADY 	Upstre	-	-			-		+	-	1	Left Weautream	
RECORDED IN MAIN CHANNEL	5	÷	÷		÷	- C		<u> </u>		<u> </u>	Right 0	
G ARTIFICIAL FEATURES (UK_D)							-	Channe			l Chann	1
(whole site: Sweep-up&Spot-checks)	Major(m)	Interm.(i)	Minor(s)				Major(m)	Interm.(i)	Minor(s)	Major(m)	Interm.(i)	Minor(s
B - Bridges W - Weirs/sluices/dams					ectors/gro							
F - Fords				O - Out	es (includir falls	ng pipes)						
none C - Culverts				other								
H Channel vegetation types/Organic debris			to be ass	•	a 10m wid	e transect:	use √ (pre	sent), E (>:	33% area). 1	W		
none (tick) or Not Visible (NV)		*******	******	*****	*****		*****	******	********	******	*****	1
Liverworts/mosses/lichens	A8	*****	*******	****			*****	******	********	********	*********	
Emergent broad-leaved herbs	******	*****	******	*****	******		*****	*****	*****	******	******	sec
Emergent reeds/sedges/rushes/grasses Floating-leaved (rooted)	*****	*****	*****	*******	******	******	******	******	******	******	******	ran.
Free-floating		**************************************	*****	******			*****		******	******	******	within a 10 m wide transect
Amphibious	****	********	*****	**********			*****	*****	*********	********	*********	wic
Submerged broad-leaved		*****	*****	*******	*****		*****	*****	*****	******	*****	E
Submerged liner-leaved Submerged fine-leaved		*****	******	******	******	******	*****	*****	*******	*******	*******	a 10
Submerged fine-leaved Filamentous algae		******	*****	*******	******	******	******	******	*******	******	*******	in é
Living parts of Terrestrial Plants (TP)			****						****			vith
CPOM			****	****	****		*****	*****	*****	****	*****	
FPOM	*****	*****	******	******	*****	*****	*****	*****	*****	*****	******	
LOD/Xylal (e.g. fallen trees)	*****	*****	*****	*******	******	*****	*****	**********	**********	*******	******	
, (- ;	10	9	8	7	6	5	4	3	2	1	Sw_up	

CARAVAG	GIO 2008 - CN	IR-IRSA, Ita	aly				500r	m SWEEP-UP				pa	age 3	
I LAND-USE WITHIN 50m OF BANKTOP AND ON BANKFACE Use √ (present), E (> 33% banklength) or W (whole											V (whole	stretch)		
				eft	Ri	ght	1			Le	əft	Ric	Right	
Natural			Тор	Face	Face		Natural			Тор	Face	Face	Тор	
Broadleaf/mixed woodland/Mediterranean forest - BL							Natural	grassland - GR						
Coniferous woodland (semi-natural) - CW]	Моо	rland/heat - MH						
Dehezza/I	Montado/Sugherete (sen	-						Rock, scree or s						
	Mediterranean '				<u> </u> '		4		pen water - OW			┢──┤		
		& shrubs - SH	<u> </u> '		/ '			Wetland (e.g. bog, n				\vdash		
	Tall herb/rank v	regetation - TH		<u> </u>			1					╞──┤		
Agriculture	1. ft i ad alautatia	i in DD	Тор	Face	Face	Тор	Urban			Тор	Face	Face	Тор	
в	roadleaf/mixed plantatio		'		/┨─────┘		4		Urban - UR					
	-	plantation - CP plantation - EU	┟────┘	┟───┤	┟┨────┘		a houses (S	uburban development)/Uı	Industry - IN			╉──┨		
	=	plantation - EO		┢────┦	┢┫─────┘		e nouses (S	• •	tment plan - WT			╂──┨		
r	, opuluo	Orchard - OR		┝───┦	┟┨────┤		Main	n road (e.g. > 10.5 m wide	•			 		
	c	Olive trees - OL	I		/╂────┤			t affecting river channel a	• • • •					
		Vineyard - VI			/───			-	je footway - WR			1 1		
l		Tilled land - TL			/ 		1		Railway - RA			1 1		
		nd/pasture - RP			/ 		1		Quarrying - QU			1 1		
		meadows - WM					1	Parkland	or gardens - PG					
	F	Rice fields - RF					1		pen water - AW					
	Farming	/Breeding - FM					Other		•					
	Field/land exen	sively irrigated					Other							
J BANK PR	OFILES							Use √	(present), E (> 33%	bankler	ngth) or V	V (whole	stretch)	
	Natural/ Unmodified		L	eft	Ri	ght		Artificial/modified	d Left				ght	
Vertical /Underc	ut	NAN	l		1		Resectioned	Resectioned (reprofiled)						
Vertical with toe							Reinforced ·	Reinforced - whole						
Steep (35⁰ < b ≤	≦70°)				/ 		Reinforced -	- top only						
Gentle (≤35º)	XWV		┟───		/├───		Reinforced ·	· · · · · · · · · · · · · · · · · · ·				<u> </u>		
			<u> </u>					· · · · · · · · · · · · · · · · · · ·						
Composite	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		l		1		Artificial two	o-stage						
Natural berm	\sim				1		Poached ba	ink ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						
Notes			۰ <u>ـــــ</u>	1	<u></u>		Embanked							
Noices							Set-back em	nbankment						
K FXTENT	OF TREES AND ASS		=ΔΤIJ	RES				Use √ (present), E (> 33% b	earklangth) or W (wt	ala stra	toh) *re	cord ever	o if <1%	
Trees (tick one				eft	Ri	ght	1			ing of c			111 ~ 170	
····· 、	,	None	_	0.1		9	*Overhanging boughs							
	Is	olated/scattered	_						*Exposed b		•			
	Regulari	y spaced, single					Underwater tree roots (TP)							
	-	casional clumps								woody				
	S	Semi-continuous						F	allen trees (inside	e the ch	nannel)			
		Continuous						Fallen/	he lowe	er bank				
L TREE VE	GETATION on banktop		1				Use $$ (present), E (> 33% banklength) or W (whole stretch) *re							
		Banktop	Ban	kface	Char	nnel	Use P (presen	nt), E (> 33% banklength) or W	Banktop	Bank	face	Char	nel	
	*Alder (<i>Alnus</i>)		 					Ash (<i>Fraxinus</i>)						
	*Elm (<i>Ulmus</i>)		 					Salt cedar (Tamarix)						
	Willow (<i>Salix</i>) Poplar (<i>Populus</i>)		 				. 0	leander (<i>Nerium oleander</i>) Platano (<i>Platanus</i>)						
Not applied	,		L	J	l		Othor	Flatalio (Flatalius)	l	L				
Not applied None Other M NOTABLE NUISANCE PLANT SPECIES Use √ (present), E (> 33% banklength) or W (whole stretch) *re									tch) *rev	cord ever	n if <1%			
III NOTABE		Banktop	Ban	kface	Char	nnel	1		Banktop	Bank		Char	-	
Bush/schrub	Amorpha fruticosa	Dunitop	Dum	liuoo	onu		Trees	Ailanthus altissima	Buintop	Dam		ona		
	Arundo spp.							Robinia pseudoacacia						
	Buddleja davidii						Aquatic	Azolla caroliniana						
	Impatiens spp.		[Elodea spp.						
	Reynoutria japonica							Lagarosiphon major						
	Rubus spp.				[Other							
Not applied	□ None						Other				7			

	CARAVAGGIO 2008 - CNR-IRSA, Ita	nly				page 4
	N FIELD SURVEY DETAILS					
	Date:/	Surveyor name:		Institute/Affil	iation:	
	River name:	Accredited Surveyor code		Data entry in	ı db by:	
	Site Name/Number:	Is the site part of a river or		·	River 🛛	Artificial D
	Region/Province	Are adverse conditions aff	ecting survey?		No 🗆	Yes 🗆
	Site Reference/Code:	If yes, state	have a second	_		
	Map Reference:	Is bed of river visible?	barely or not		rtially D	±entirely □
	Spot-check 2 (GPS):	Site surveyed from:	left bank	•	bank □ No □	channel □ Yes □
	Spot-check 10 (GPS):	Number of photographs ta	o measure channel/water width, e	10.7		
		Photo references:	Applicatio	on time [.]		
	O PREDOMINANT VALLEY FORM (within the horizon		(tick one box only)			
						/
	Shallow vee		Concave/bowl			
				~~.	\sim	
			Asymmetrical valley		Š.	
	Deep vee		Asymmetrical valley		N.	
		\checkmark			×~~~	
				-	_	
			U-shaped valley		J	(
	Gorge 🗆 🔪	(_		
		\vee	No obvious valley sides			
site						
Whole site	Distinct flat valley bottom?	No E] Yes			
Å	Natural terraces	No E] Yes			
>	P CHANNEL FORM (tick one box only)					
		-				
	Meandering 🗆 🦹	200	Sinuous		1-	10000
	Q					
	Braided		Constrained (natural)	· · · · ·		
		SOK				
	Anastomosed 🛛 🛁		Constrained (artificial)		17	
	Wandering		Other (state)			
	Wandering D		Other (state)	ш		
	Q GENERAL FEATURES/DEGRADATION OF S	SITE		Use √ (presen	t), E (> 33% bank	length) or W (whole stretch)
	Cut face on bar forms		Is the channel choked with vege	etation?		
	Lobate bars		Weed-cutting/Bank mowing			
	Rocks roughened or with sharp edges & corners		Is channel obviously realigned?			
	Coarse material in riffles embedded		Is channel obviously over-deepe			
	Siltation in pools		Is water impounded by weir/dan			Vac. 🗖
	Tillage of fields perpendicular to river course		Is river affected by hydro-peaking	<u> </u>	No 🗆	Yes 🗆
	Q FEATURES OF SPECIAL INTEREST None D Very 1	arge boulders (>1 m)	Use √ (present), E Fen(s)			tretch) *record even if <1% s Cauldrons
	Braided channels	*Leafy debris	Bog(s)		odplain bould	
		Fringing reed-bank(s)	Wet woodland(s)		er (state)	
	*Natural waterfall(s) >5m high	Quaking bank(s)	Marsh(es)		()	
	*Natural waterfall(s) <5m high	*Sink hole(s)	Springs in channel and banks	,		
	Natural cascade(s) Back	water(s)(large areas)	Petrifying springs	,		
	*Debris dam(s)	Water meadow(s)	Natural open water			
	Riparian habitat(s) of HABITAT Directive:					Net emplied
	Riparian habitat(s) of HABITAT Directive.				None	Not applied
ŝ						
Notes						
Z						
_						
	CNR-IRSA Water Research Institute, Brugherio				2004692	IDSA
	CARAVAGGIO was developed with the collaboration based on the River Habitat Survey method properties of the second propert			and is		
	based on the river mapital survey method propo	Sea by the U.K. ENVIONME				
	Mothod double	ned and tested within the fr	amework of the STAR and Euro-li	mnace Ellin	_INHABI	1 teb11
				πραυσ Ε.Ο. β	10,0013	
2	No 🔆		-12-		Fural	impace
~					LUIO-I	limpacs