

Supporting Information. Maria Riaz, Mathias Kuemmerlen, Claudia Wittwer, Bernardino Cocchiararo, Imran Khaliq, Markus Pfenninger, and Carsten Nowak. 2019. Combining environmental DNA and species distribution modeling to evaluate reintroduction success of a freshwater fish. *Ecological Applications*.

Appendix S1

Table S1. Overview of the results of *Alburnoides bipunctatus* from (RS) reintroduction river sites, (MS) model sites without, (eMS) model sites with eDNA based data and (AS) additional sites. Sampling sites with the coordinates (Datum: WGS84), presence of species by environmental DNA sampling, success rate and number of positive qPCR replicates for each sample. Controls were taken from the rivers Bieber and Nüst with certain absence of *A. bipunctatus* (Bobbe 2015). Success rate shows the number of positive samples out of total for each site. qPCR replicates show how many replicates were positive from each sample.

NO.	River category	River name	Site NO.	Success rate	qPCR replicates	Ct	Coordinates
1	RS	Döllbach	1	4/4	3,3,3,3	37.557	N50.4872388 E9.6686802
			2	2/4	2,2	39.734	N50.4732110 E9.6744587
			3	3/4	1,1,2	38.844	N50.4667440 E9.7004355
			4	-	-	-	N50.4452455 E9.7297588
			5	-	-	-	N50.423215 E9.757736
2	RS	Ulster	1		-	-	N50.552349 E10.007696
			2	-	-	-	N50.631090 E10.015793
			3	2/4	1,1	39.237	N50.658876 E9.995390
			4	3/4	3,3,2	38.816	N50.667642 E9.980905
3	RS	Kinzig	1	-	-	-	N50.1523990 E9.0103440
			2	1/3	1	40.434	N50.1617500 E9.0426260

			3	2/3	2,2	39.062	N50.1995718 E9.1432546
			4	3/3	3,2,2	38.376	N50.2086670 E9.2285470
			5	4/4	3,3,3,3	34.084	N50.228907 E9.276473
			6	-	-	-	N50.2533117 E9.3155469
			7	-	-	-	N50.297412 E9.393201
			8	-	-	-	N50.324901 E9.496232
			9	-	-	-	N50.335665 E9.587364
4	RS	Nidda	1	3/3	3,3,3	38,073	N50.149129 E8.638106
			2	3/3	3,3,3	38.001	N50.181032 E8.735331
			3	2/2	3,3	36.771	N50.233110 E8.763601
			4	1/2	1	40.153	N50.296545 E8.812223
			5	-	-	-	N50.332571 E8.907743
			6	2/3	2,2	36.213	N50.395757 E8.983064
			7	-	-	-	N50.401305 E8.992675
			8	-	-	-	N50.453117 E9.047658
			9	-	-	-	N50.527522 E9.233854
5	RS	Sinn	1	2/2	3,3	33.792	N50.222986 E9.609800

			2	3/3	3,3,3	29.492	N50.2265233 E9.6217506
			3	4/4	3,3,3,3	30.533	N50.248986 E9.620225
			4	5/6	3,2,2,2,1	40.767	N50.255676 E9.635399
			5	-	-	-	N50.256723, E9.641672
6	RS	Mümling	1	3/3	3,3,3	36.305	N49.821428 E9.048215
			2	4/4	3,3,3,3	36.760	N49.769637 E8.988359
			3	10/11	3,3,3,3,3,2,2,2,1,1,1,1	37.616	N49.733575 E8.997591
			4	-	-	-	N49.6865719 E8.9990030
			5	-	-	-	N49.635709 E8.998212
7	RS + MS	Lahn	1	-	-	-	N50.868587 E8.608327
			2	4/4	3,3,3,3	32.494	N50.849494 E8.667254
			3	3/4	1,1,1	40.041	N50.852939 E8.790692
8	MS	Eder	1	-	-	-	N51.196393 E9.029373
			2	4/4	3,3,3,3	33.747	N51.155881 E8.899303
			3	3/4	1,1,1	34.987	N51.065155 E8.800292
			4	4/4	3,3,3,3	40.026	N51.032279 E8.630404
			5	4/4	3,3,3,3	38.718	N50.992140 E8.547269

9	MS	Orke	1	4/4	3,3,3,3	33.640	N51.128039 E8.867053
10	MS	Wisper	1	4/4	3,3,3,2	38.562	N50.045508 E7.803192
			2	-	-	-	N50.0706295 E7.8665328
			3	-	-	-	N50.096898 E7.911351
			4	1/6	2	38.945	N50.118033 E7.963553
11	MS	Elbbach	1	-	-	-	N50.420545 E8.038705
			2	-	-	-	N50.428799 E8.036256
			3	-	-	-	N50.447105 E8.044154
			4	-	-	-	N50.473389 E8.041120
			5	-	-	-	N50.500183 E8.051310
			6	-	-	-	N50.539252 E8.032141
12	MS	Aar	1	-	-	-	N50.363724 E8.029378
			2	-	-	-	N50.322239 E8.071264
			3	-	-	-	N50.268600 E8.056059
13	MS	Dill	1	-	-	-	N50.578595 E8.486938
			2	-	-	-	N50.597126 E8.382208
			3	-	-	-	N50.658950 E8.324917

			4	-	-	-	N50.720911 E8.299675
			5	-	-	-	N50.755137 E8.208532
14	MS	Perf	1	-	-	-	N50.911778 E8.468611
15	MS	Wetschaft	1	-	-	-	N50.874673 E8.773042
16	MS	Wohra	1	-	-	-	N50.828147 E8.910497
			2	-	-	-	N50.860716 E8.928913
			3	-	-	-	N50.912873 E8.946122
			4	-	-	-	N50.959133 E8.969833
			5	-	-	-	N51.014340 E8.971333
17	AS	Felda	1	4/4	3,3,3,3	31.768	N50.693139 E9.052222
			2	4/4	3,3,3,3	33.805	N50.700975 E9.116946
			3	-	-	-	N50.658633 E9.141365
			4	-	-	-	N50.653503 E9.166766
18	AS	Jossa	1	1/4	3	39.458	N50.237061 E9.598912
19	AS	Erbach	1	2/8	3,3	39.282	N50.034028 E8.058663
20	AS	Main	1	2/4	1,1	40.976	N49.999230 E8.310322
			2	-	-	-	N50.090160 E8.597375

			3	2/4	1,1	40.588	N50.095772 E8.545516
			4	1/5	1	41.267	N50.104518 E8.940788
21	AS	Rhein	1	-	-	-	N50.063106 E7.775827
			2	2/5	1,1	40.588	N49.979156 E7.964711
22	AS	Weil	1	-	-	-	N50.460268 E8.291057
			2	-	-	-	N50.451630 E8.352747
			3	-	-	-	N50.423190 E8.387895
			4	-	-	-	N50.382750 E8.393500
			5	-	-	-	N50.343000 E8.382027
			6	-	-	-	N50.320139 E8.413162
23	AS	Schmale Sinn	1	-	-	-	N50.2818685 E9.6544554
			2	-	-	-	N50.2999947 E9.6578676
			3	-	-	-	N50.313869 E9.667923
			4	-	-	-	N50.336705 E9.672464
			5	-	-	-	N50.350214 E9.733000
24	AS	Elmbach	1	-	-	-	N50.034026 E8.058661
25	eMS	Salz	1	-	-	-	N50.278131

							E9.360878
			2	-	-	-	N50.319228 E9.373850
			3	-	-	-	N50.387962 E9.368145
26	eMS	Bracht	1	3/3	3,3,3	32.366	N50.258079 E9.307496
			2	3/3	3,3,2	35.780	N50.304989 E9.303910
			3	-	-	-	N50.364769 E9.260241
27	eMS	Bieber	1	-	-	-	N50.217505 E9.272972
			2	-	-	-	N50.190518 E9.275296
			3	-	-	-	N50.160473 E9.335065
28	eMS	Orb	1	-	-	-	N50.237705 E9.292791
			2	-	-	-	N50.211903 E9.366558
29	eMS	Schwarzbach	1	-	-	-	N50.141786 E8.385978
			2	-	-	-	N50.092550 E8.430960
30	eMS	Nidder	1	-	-	-	N50.277553 E8.941826
			2	-	-	-	N50.298260 E8.987525
			3	-	-	-	N50.337005 E9.011683
31	eMS	Usa	1	-	-	-	N50.376038 E8.693715

			2	-	-	-	N50.365753 E8.624140
32	Control	Bieber	1	-	-	-	N50.57831 E9.80536
33		Nüst	1	-	-	-	N50.62919 E9.83418

Table S2. Detail of the 5 years-spanned reintroductions programs started since 2009 of *Alburnoides bipunctatus* in four rivers of central Germany by Regierungspräsidium Darmstadt, Obere Fischereibehörde and Obere Naturschutzbehörde (Bobbe 2015; Bobbe and Korte 2017).

NO.	River name	Place of reintroduction	Reintroduction year	Population status
1	Nidda	near Bad Vilbel	since 2009	established
2	Kinzig	near Wächtersbach	since 2010	established
3	Sinn	at Altengronau	since 2012	established
4	Mümling	near Bad König	since 2013	unestablished

LITERATURE CITED

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