

Online resources for:

Niche modelling and molecular phylogenetics unravel the colonisation biology of three species of the freshwater planarian genus *Girardia* (Platyhelminthes, Tricladida)
Hydrobiologia

Lisandra Benítez-Álvarez^{1,2*}, Laia Leria^{1,2*}, Ronald Sluys³, Ana María Leal-Zanchet⁴, Marta Riutort^{1,2}

¹ Departament de Genètica, Microbiologia i Estadística, Universitat de Barcelona, Avinguda Diagonal 643, 08028, Barcelona, Catalonia, Spain

² Institut de Recerca de la Biodiversitat (IRBio), Universitat de Barcelona, Avinguda Diagonal 643, 08028, Barcelona, Catalonia, Spain

³ Naturalis Biodiversity Center, P. O. Box 9517, 2300 RA Leiden, The Netherlands

⁴ Instituto de Pesquisas de Planárias and Programa de Pós-Graduação em Biologia, Universidade do Vale do Rio dos Sinos (UNISINOS), 93022-750 São Leopoldo, Rio Grande do Sul, Brazil

*Lisandra Benítez-Álvarez and Laia Leria contributed equally to this work

Corresponding author: Marta Riutort. E-mail: mriutort@ub.edu

Table S1. Sequences used in the molecular analyses, with indication of their codes, the sampling locality of the individuals, GenBank accession numbers, and the taxonomic identification.

Code in the figure	Locality	Taxonomic Identification	COI	EF1 α
84do_FrLez	France, River Lez	<i>G. dorotocephala</i>	OM307073	OM349486
87ti_FrLun	France, Lunaç	<i>G. tigrina</i>	OM307076	OM418671
109ti_CatMug	Spain, Catalonia, St. Llorenç de la Muga, River Muga	<i>G. tigrina</i>	OM307077	OM418675
116ti_CatEbr	Spain, Catalonia, Riba-roja d'Ebre, River Ebro	<i>G. tigrina</i>	OM307078	OM418673
125sc_BrRGScon	Brazil, Rio Grande do Sul, Constantina	<i>G. schubarti</i>	OM307079	OM418648
126sc_BrRGScon	Brazil, Rio Grande do Sul, Constantina	<i>G. schubarti</i>	OM307080	OM418649
127cl_BrRGSleo	Brazil, Rio Grande do Sul, São Leopoldo	<i>G. clandestina</i>	OM307081	OM418688
131.1bi_BrRGSseb	Brazil, Rio Grande do Sul, São Sebastião de Caí	<i>G. biapertura</i>	OM307082	
133cl_BrRGSleo	Brazil, Rio Grande do Sul, São Leopoldo	<i>G. clandestina</i>	OM307085	OM418690
134cl_BrRGSsalv	Brazil, Rio Grande do Sul, Salvador do Sul	<i>G. clandestina</i>	OM307086	OM418689
135.1ti_FrArd	France, Gorges de l'Ardeche	<i>G. tigrina</i>	OM307087	OM418677
137ti_FrIsp	France, Ispagnac	<i>G. tigrina</i>	OM307088	OM418682
138.1si_CatFlu	Spain, Catalonia, Girona, Orfes, River Fluvià	<i>G. sinensis</i>	OM307089	OM418669
138.2si_CatFlu	Spain, Catalonia, Girona, Orfes, River Fluvià	<i>G. sinensis</i>	OM307090	OM418664
138.3ti_CatFlu	Spain, Catalonia, Girona, Orfes, River Fluvià	<i>G. tigrina</i>	OM307091	OM418681
138.8si_CatFlu	Spain, Catalonia, Girona, Orfes, River Fluvià	<i>G. sinensis</i>	OM307096	OM418663

139.2si_EsMen	Spain, Menorca, Algendar	<i>G. sinensis</i>	OM307098	OM418657
140.1si_ItCer	Italy, Sardinia, R.Fungarone, Putifigari	<i>G. sinensis</i>	OM307099	OM418655
143sp_ItTos	Italy, Toscana, Torr.Vincio	<i>G. tigrina</i>	OM307101	OM418683
247si_EsPon	Spain, Pontevedra, Gondomar	<i>G. sinensis</i>	OM307102	OM418653
248do_EsCue	Spain, Cuenca, Reíllo	<i>G. dorotocephala</i>	OM307103	OM349494
250do_PrCh	Portugal, Cheleiros	<i>G. dorotocephala</i>	OM307104	OM349490
252ti_Frlss	France, Issalès	<i>G. tigrina</i>	OM307105	OM418674
253si_EsSal	Spain, Salamanca, Ciudad Rodrigo	<i>G. sinensis</i>	OM307106	OM418654
260.1cl_BrRGSSj	Brazil, Rio Grande do Sul, São Jose do Norte	<i>G. clandestina</i>	OM307107	OM418691
261ar_BrSPip	Brazil, São Paulo, Iporanga (cave)	<i>Girardia</i> aff. <i>arenicola</i>	OM264750	OM418632
262mu_BrMGSbod	Brazil, Mato Grosso do Sul, Bodoquena (cave)	<i>G. multidiverticulata</i>	OM307109	OM418642
263sp_BrRGSSj	Brazil, Rio Grande do Sul, São Jose do Norte	<i>G. clandestina</i>	OM307110	OM418692
269do_BrRGScon	Brazil, Rio Grande do Sul, Constantina	<i>G. dorotocephala</i>	OM307111	OM349488
270.1do_USAbalt	USA, Baltimore	<i>G. dorotocephala</i>	OM307112	OM349498
270.2do_USAbalt	USA, Baltimore	<i>G. dorotocephala</i>	OM307113	OM349499
295sp_ChiLHrs	Chile, Los Lagos, Huinay Research Station	<i>Girardia</i> sp. 5	OM307114	OM418636
298.2sp_ChiPP	Chile, Pumalin Park	<i>Girardia</i> sp. 5	OM307118	OM418638
299sp_ChiLPh	Chile, Los Lagos, Peninsula Huequi	<i>Girardia</i> sp. 5	OM307119	OM418637
308.1si_FrMon	France, Montpellier	<i>G. sinensis</i>	OM307121	OM418656
325mu_BrMGSbon	Brazil, Mato Grosso do Sul, Bonito (cave)	<i>G. multidiverticulata</i>	OM307123	OM418641
327do_USAmich	USA, Michigan, Ann Arbor	<i>G. dorotocephala</i>	OM307124	OM349489
337mu_BrMGSbod	Brazil, Mato Grosso do Sul, Bodoquena (cave)	<i>G. multidiverticulata</i>	OM307125	OM418643

373ti_CatMur	Spain, Catalonia, Riera de Mura	<i>G. tigrina</i>	OM307127	OM418680
377si_CatFlvil	Spain, Catalonia, Girona, Fluvià, Vilert	<i>G. sinensis</i>	OM307128	OM418658
383do_HawUM	Hawaii, Upper Manoa	<i>G. dorotocephala</i>	OM307129	OM349501
384do_HawMM	Hawaii, Middle Manoa	<i>G. dorotocephala</i>	OM307130	OM349500
399sc_BrRGSmaq	Brazil, Rio Grande do Sul, Maquine	<i>G. schubarti</i>	OM307131	OM418646
401sp_BrMatcha	Brazil, Mato Grosso, Chapada Guimaraes (cave)	<i>Girardia</i> sp. 3	OM307132	
402sp_BrSCchap	Brazil, Santa Catarina, Chapeco	<i>Girardia</i> sp. 6	OM307133	OM418635
403cl_BrRGSleo	Brazil, Rio Grande do Sul, São Leopoldo	<i>G. clandestina</i>	OM307134	OM418686
466.2do_USA	USA, Carolina Enterprise ^a	<i>G. dorotocephala</i>	OM307136	OM349491
467.2do_USA	USA, Carolina Enterprise ^a	<i>G. dorotocephala</i>	OM307138	OM349502
468.2do_USA	USA, Carolina Enterprise ^a	<i>G. dorotocephala</i>	OM307140	OM349492
469.1ti_CatMj	Spain, Catalonia, Montjüic	<i>G. tigrina</i>	OM307141	OM418670
469.2ti_CatMj	Spain, Catalonia, Montjüic	<i>G. tigrina</i>	OM307142	OM418684
534sc_BrRGSspau	Brazil, Rio Grande do Sul, São Francisco de Paula	<i>G. schubarti</i>		OM418647
535ti_BrRGSleo	Brazil, Rio Grande do Sul, São Leopoldo	<i>G. tigrina</i>	OM307143	OM418687
542ti_GerPill	Germany, Pillnitz	<i>G. tigrina</i>	OM307144	OM418678
543do_USAvirg	USA, Virginia	<i>G. dorotocephala</i>	OM307145	OM349495
544si_Austderw	Australia, Tasmania, Derwent River	<i>G. sinensis</i>	OM307146	OM418667
545do_USAvirgJFRC	USA, Virginia, Ashburn, Janelia Farm Research Campus	<i>G. dorotocephala</i>	OM307147	OM349496
548do_Mex	Mexico	<i>G. dorotocephala</i>	OM307150	
550do_Mex	Mexico	<i>G. dorotocephala</i>	OM307151	OM349497
552si_GerZsch	Germany, Zschorna	<i>G. sinensis</i>	OM307153	OM418666

554si_NethLeid	Netherlands, Leiden	<i>G. sinensis</i>	OM307155	OM418665
556ti_CatFIEmp	Spain, Catalonia, Arenys d' Empordà, Fluvià River	<i>G. tigrina</i>	OM307156	OM418685
559.1si_CatFIEmp	Spain, Catalonia, Arenys d' Empordà, Fluvià River	<i>G. sinensis</i>	OM307158	OM418668
659ti_CanNS	Canada, Nova Scotia, Ainslie Lake	<i>G. tigrina</i>	OM307160	OM418676
660si_AustQUQ	Australia, Queensland, UQ Lakes	<i>G. sinensis</i>	OM307161	OM418659
661si_AustQCC	Australia, Queensland	<i>G. sinensis</i>	OM307162	OM418660
679ti_USADL	USA, Michigan, Douglas Lake	<i>G. tigrina</i>	OM307163	OM418672
684.2do_Jap	Japan, Hoshikuki-cho, Mizu-no-sato Park, Miyako River	<i>G. dorotocephala</i>	OM307166	OM349493
685.1san_ChiTalog	Chile, Talagante, Mapocho River	<i>Girardia sanchezi</i>	OM307167	OM418644
685.2san_ChiTalog	Chile, Talagante, Mapocho River	<i>Girardia sanchezi</i>	OM307168	OM418645
686si_ChinYand	China, Conghua, Yadongxi River	<i>G. sinensis</i>	OM307169	OM418662
1056sp_MexBST1	Mexico, Biological Station Los Tuxtlas 1	<i>Girardia</i> sp. 1		OM418694
1059sp_MexBST1	Mexico, Biological Station Los Tuxtlas 1	<i>Girardia</i> sp. 1		OM418639
1062sp_MexLagE	Mexico, Los Tuxtlas, Laguna Escondida	<i>Girardia</i> sp. 1	OM307171	OM418640
1063sp_MexLagE	Mexico, Los Tuxtlas, Laguna Escondida	<i>Girardia</i> sp. 1	OM307172	
1070sp_MexBST2	Mexico, Biological Station Los Tuxtlas 2	<i>Girardia</i> sp. 2	OM307173	OM418633
1072.2si_Cub	Cuba, Matanzas, Martí, El Huequito	<i>G. sinensis</i>	OM307174	OM418661
1178sp_BrBah	Brazil, Bahía, Chapada Diamantina, Vale do Pati (cave)	<i>Girardia</i> sp. 4	OM307175	OM418634
1179sp_MexXoch	Mexico, Mexico City, Xochimilco, Cuemanco	<i>Girardia</i> sp. 7	OM307176	OM418693
1180do_MexXoch	Mexico, Mexico City, Xochimilco, Cuemanco	<i>G. dorotocephala</i>	OM307177	OM349487
1181sp_MexXoch	Mexico, Mexico City, Xochimilco, Cuemanco	<i>Girardia</i> sp. 7	OM307178	
1182do_MexMicho	Mexico, Michoacán	<i>G. dorotocephala</i>	OM307179	

F6510.2sp_BrPar	Brazil, Paraná, Toledo, Cerro da Lola	<i>G. schubarti</i>	OM418651
InoueA_CS103	USA, Texas, Caroline Spring, Independence Creek	<i>Girardia</i> sp. 1	MN652340.1
InoueB_ES201	USA, New Mexico, Palomas Creek, Emrick Spring	<i>Girardia</i> sp. 1	MN652378.1
InoueC_BLBC002	USA, Texas, Bitter Lake, Bitter Creek	<i>Girardia</i> sp.	MN652301.1
InoueD_GR209	USA, New Mexico, West Fork of the Gila River	<i>Girardia</i> sp.	MN652373.1
GB_Gsi_China	China, Guangdong Province Xinghu Lake in Zhaoqing	<i>G. sinensis</i>	KP091895.1
GB_Gti_FrMont	France, Montpellier	<i>G. tigrina</i>	DQ666042.1
GB_Gsc_Br	Brazil	<i>G.schubarti</i>	DQ666041.1 KJ599691.1
GB_som1_Arg	Argentina, Somuncurá Plateau, Head of Valcheta Stream	<i>Girardia somuncura</i>	MW271865
GB_som2_Arg	Argentina, Somuncurá Plateau, Head of Valcheta Stream	<i>G. somuncura</i>	MW271866
GB_som3_Arg	Argentina, Somuncurá Plateau, Head of Valcheta Stream	<i>G. somuncura</i>	MW271867
GB_som4_Arg	Argentina, Somuncurá Plateau, Head of Valcheta Stream	<i>G. somuncura</i>	MW271869
GB_tom1_Arg	Argentina, Somuncurá Plateau, Head of Valcheta Stream	<i>Girardia tomasi</i>	MW271863
GB_tom2_Arg	Argentina, Somuncurá Plateau, Head of Valcheta Stream	<i>G. tomasi</i>	MW271864
GB_tom2_Arg	Argentina, Somuncurá Plateau, Head of Valcheta Stream	<i>G. tomasi</i>	MW271868

^a: Carolina Enterprise Word-Class Support for Science & Math

Figure S1. Potential worldwide geographic distribution of *Girardia tigrina*, *G. sinensis*, and *G. dorocephala*, estimated through niche modelling by using six hydroenvironmental variables. Color scale from blue to red indicates habitat suitability, ranging from 0 to 1 (low suitability ≤ 0.5 , moderate suitability $\geq 0.5 < 0.7$, high suitability ≥ 0.7). Filled white circles indicate the localities of each of the clades included in the analyses. Black pixels: no hydro-environmental data.

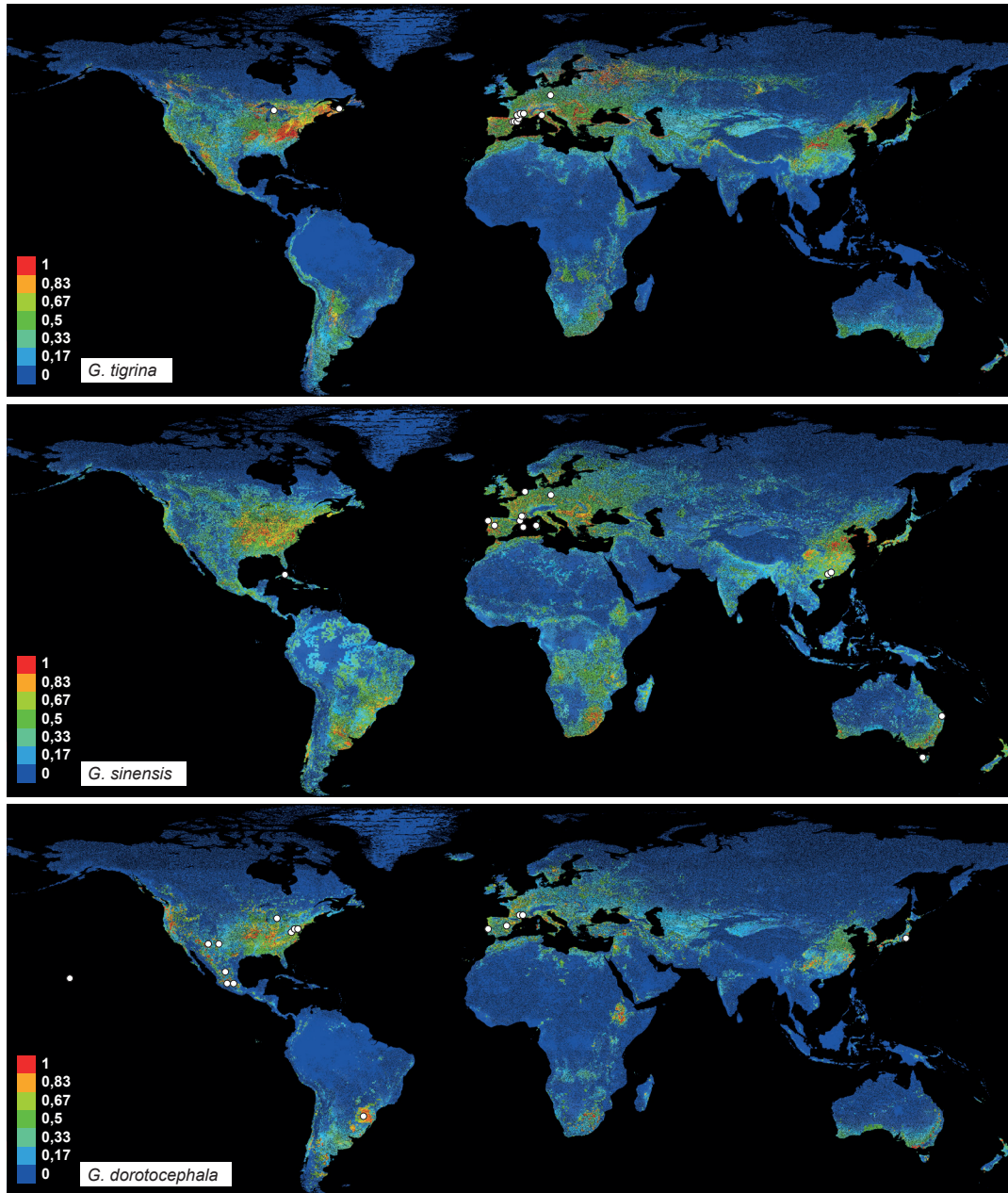
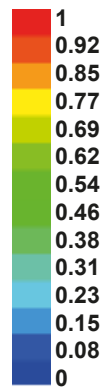
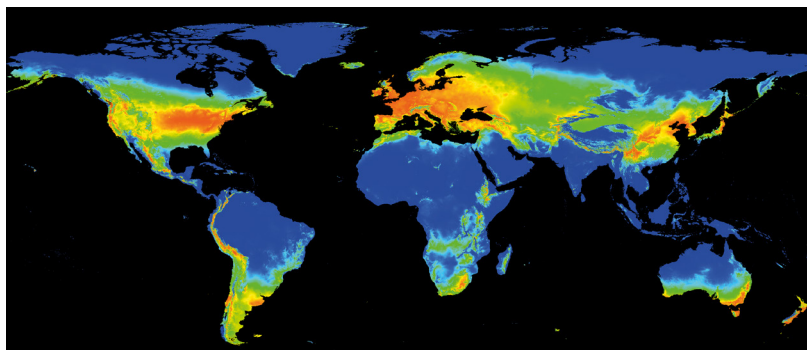


Figure S2. Predicted world-wide current and future geographic distribution of *Girardia tigrina*, *G. sinensis*, and *G. dorocephala* under two different scenarios of climate change (SSP1-2.6: low greenhouse gas emissions; SSP5-8.5: high greenhouse gas emissions), estimated through niche modelling, using the bioclimatic variables Mean Annual Temperature and annual Precipitation. Future time periods corresponding to 2021-2040 and 2081-2100. Color scale from blue to red indicates habitat suitability, ranging from 0 to 1 (low suitability ≤ 0.5 , moderate suitability $\geq 0.5 < 0.7$, high suitability ≥ 0.7). These figures are summarized in Fig. 5.

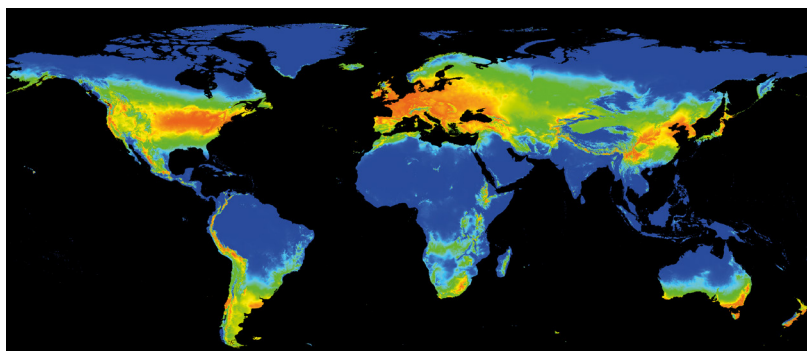


G. tigrina

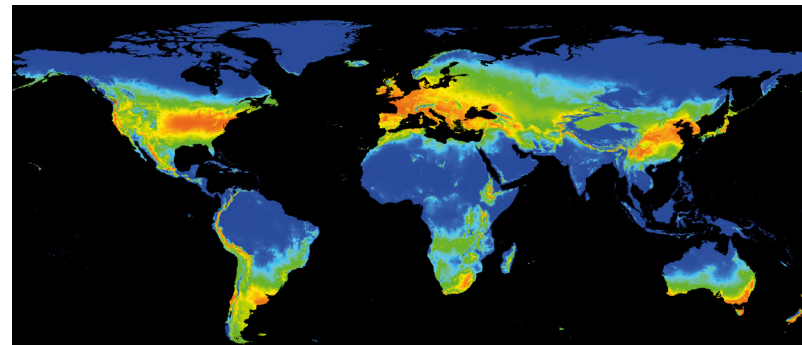
2021-2040 / SSP1-2.6



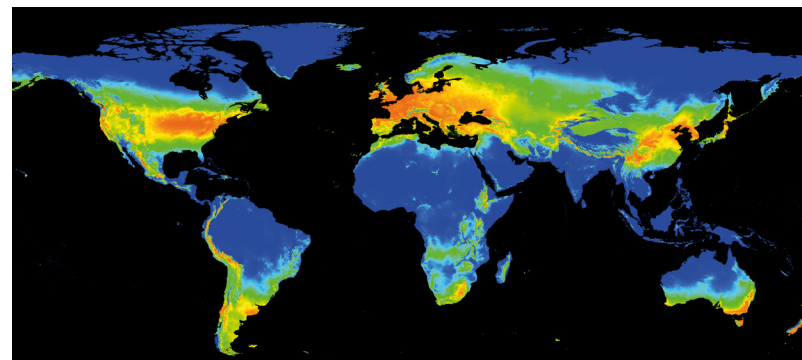
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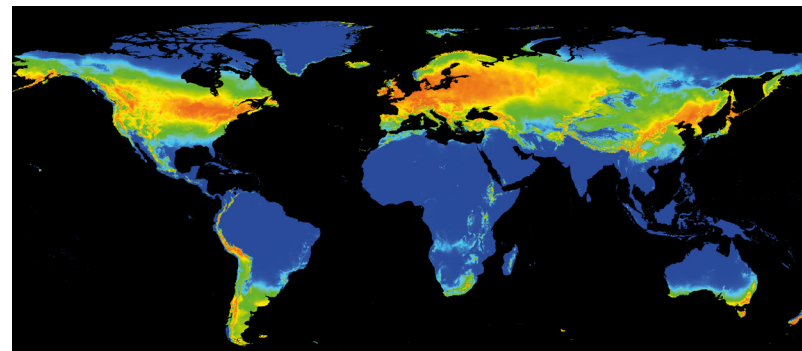
Current

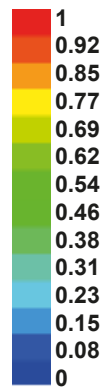


2081-2100 / SSP1-2.6



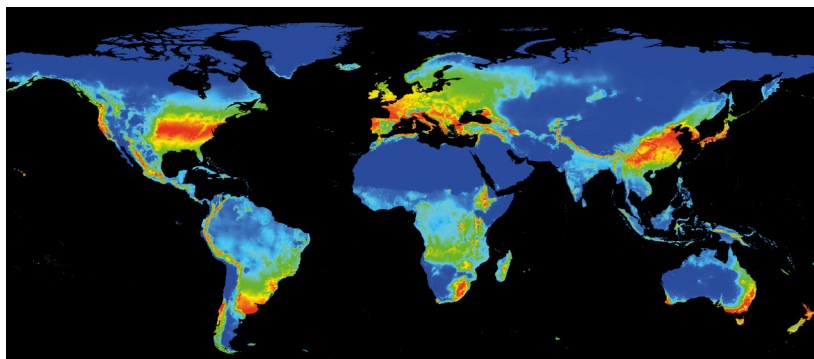
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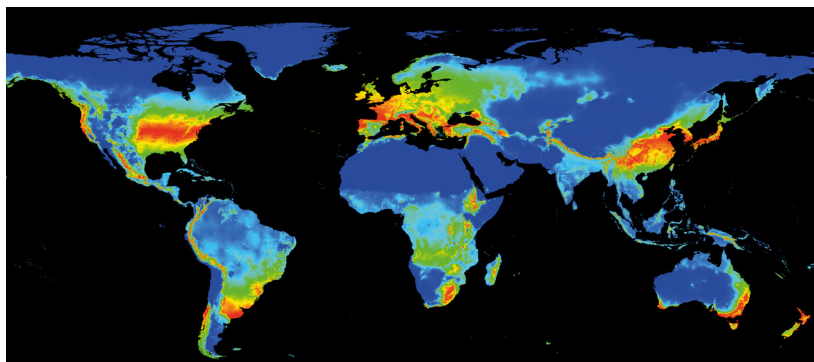


G. sinensis

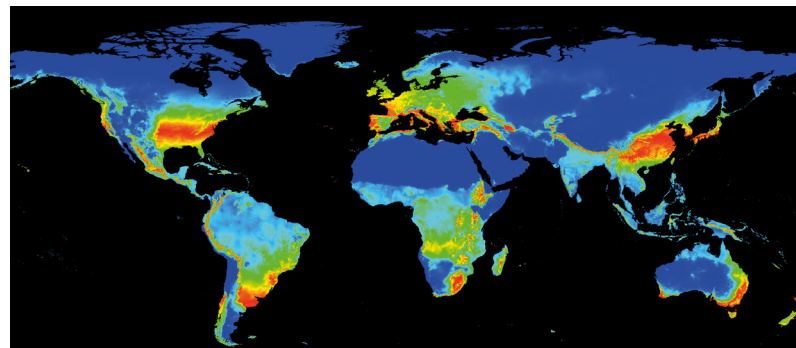
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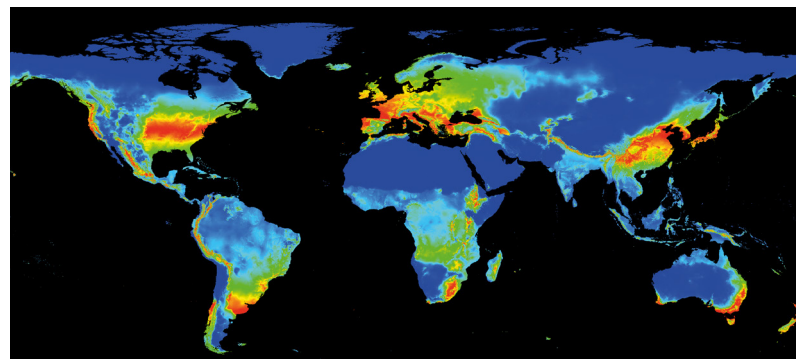
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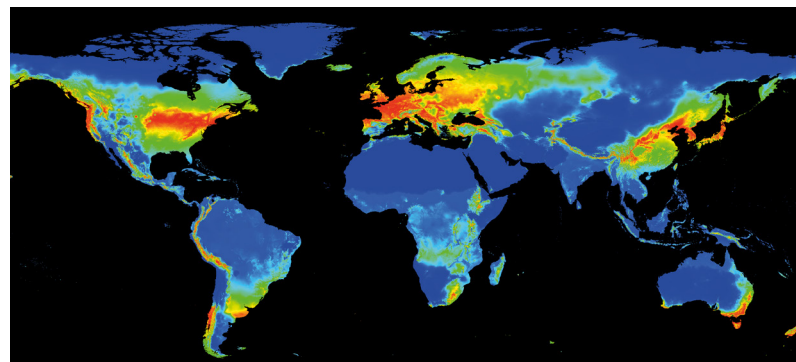
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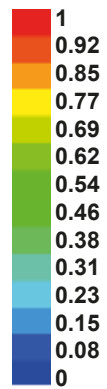


2081-2100 / SSP1-2.6



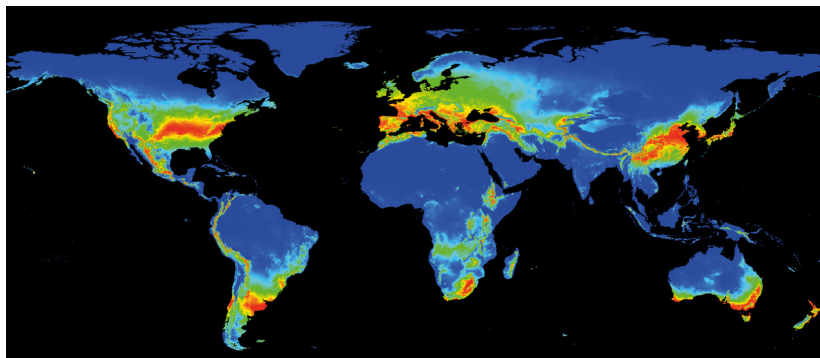
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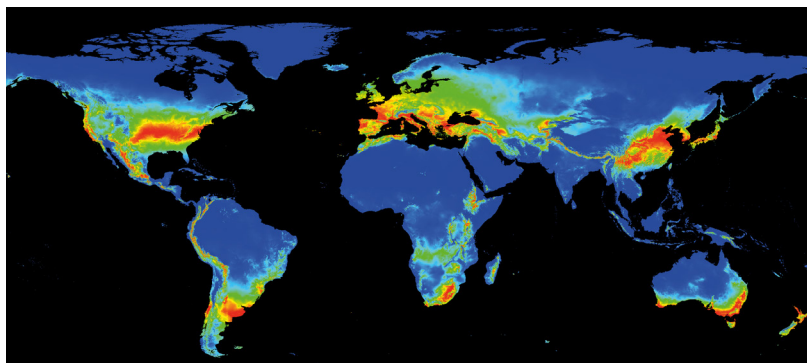


G. dorotocephala

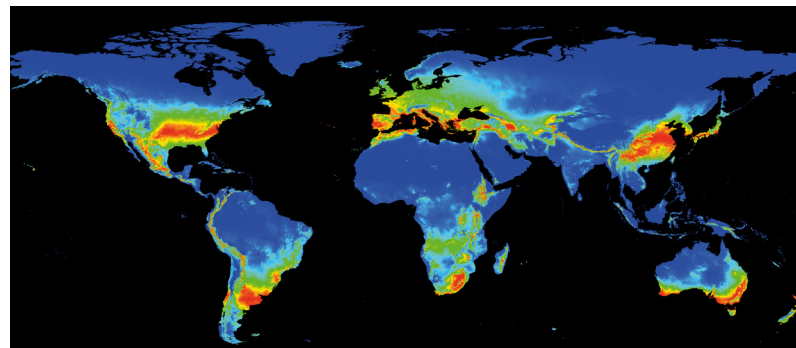
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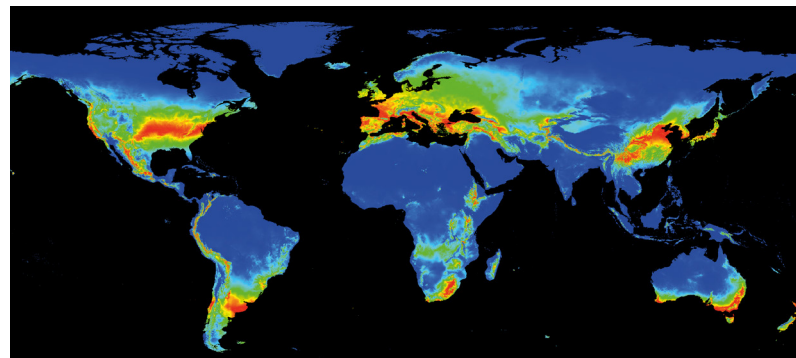
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Current



2081-2100 / SSP1-2.6



2081-2100 / SSP5-5.8

