

**Chromosome rearrangements are not accompanied by expected genome size change in the tree weta *Hemideina thoracica* (Orthoptera, Anostostomatidae)**

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DaVIZd	4Yc` ^ `d ^ V dRIV	#_	DM	=`TR&Z_	4`UV	7] h Tj e ^ Veg :_UM	4G i` /
H. crassidens	"&	"&	I@	Dj 7Rc^	S	SZ`*%	SZ`#
H. crassidens	"&	"'	II	Dj 7Rc^	R	SZ`&#	%Z`%
H. crassidens	"*	"*	I@	=VhZlARdH	U	SZ`) S	SZ`!
H. crassidens	"*	"*	I@	=VhZlARdH	T	SZ`#` &	SZ`#
H. thoracica	"S	"S	I@	9V_UVtd _	9V_ S'	SZ`&S"	%Z`S"
H. thoracica	"S	"S	I@	9V_UVtd _	9V_ S#	SZ`&#	SZ`)
					9V_ S#	SZ`A` *	SZ` (
H. thoracica	"S	"%	II	9V_UVtd _	9V_ S!	SZ`" S	#Z`#
H. thoracica	"S	"%	II	9V_UVtd _	9V_ SS	SZ`!` *	SZ`'
H. thoracica	"S	"%	II	9V_UVtd _	9V_ SS	SZ`) )	#Z` S
H. thoracica	"S	"%	II	9V_UVtd _	9V_ S%	SZ`A` %	#Z`"
H. thoracica	"S	"%	II	9V_UVtd _	9V_ S&	SZ`" #	#Z` (
H. thoracica	"S	"%	II	9V_UVtd _	9V_ S'	SZ`) *	#Z`"
H. thoracica	"S	"S	I@	HRZR\Rvd	2e` "#	SZ`! S	SZ` &
H. thoracica	"S	"S	I@	HRZR\Rvd	2e` "!	SZ`%#	#Z` S
					2e` "!	SZ`*` *	SZ`%#
H. thoracica	"S	"S	I@	HRZR\Rvd	2e` " S	SZ`%#	#Z`'
H. thoracica	"S	"S	I@	HRZR\Rvd	2e` "%	SZ`&#`	#Z`%`
H. thoracica	"S	"S	I@	HRZR\Rvd	2e` "&	SZ`A` %	#Z`"
H. thoracica	"S	"%	II	HRZR\Rvd	2e` ""	SZ`%#`	#Z`%#
H. thoracica	"S	"%	II	HRZR\Rvd	2e` "'	SZ`#%`	SZ`#
H. thoracica	"S	"%	II	HRZR\Rvd	2e` "(	SZ`S%`	SZ`!
H. thoracica	"&Q	"&	I@	5` ^ VGR]V	5` ^ ##	SZ`S` (	SZ`S%`
					5` ^ ##	SZ`#`* &	SZ`&#
H. thoracica	"&Q	"&	I@	5` ^ VGR]V	5` ^ #	SZ`S%`%	SZ`#
					5` ^ #	SZ`S! (	SZ`S#
H. thoracica	"&Q	"&	I@	5` ^ VGR]V	5` ^ #	SZ`#%&	SZ` &
					5` ^ #	SZ`S` (	SZ`S (
H. thoracica	"&Q	"&	I@	5` ^ VGR]V	5` ^ #&	SZ`#` )	#Z`"
H. thoracica	"&Q	"'	II	5` ^ VGR]V	5` ^ #!	SZ`A` %	SZ`!
H. thoracica	"&Q	"'	II	5` ^ VGR]V	5` ^ #%	SZ`A`" S	SZ`'
					5` ^ #%	SZ`%` %	#Z`!
H. thoracica	"&Q	"'	II	5` ^ VGR]V	5` ^ #S	SZ` ( (	SZ`&#`
H. thoracica	" (	")	II	ARZ`Z	ARZ`%!	SZ`) !	SZ`%`
					ARZ`%!	SZ`%`'	SZ` (
					ARZ`%!	SZ`S"	SZ`*`
H. thoracica	" (	")	II	ARZ`Z	ARZ`%#	SZ`%` #	SZ`*`
H. thoracica	" (	" (	I@	ARZ`Z	ARZ`%`	SZ`) S	SZ` S
					ARZ`%`	SZ` ( )	#Z`%`
H. thoracica	" (	" (	I@	ARZ`Z	ARZ`%#	SZ`#` #	#Z`!
H. thoracica	" (	" (	I@	ARZ`Z	ARZ`%S	SZ` &	#Z` S
H. thoracica	"*	#!	II	> eEVAf`V			#Z`#

EYVRZ `WYZdfUj hRde fd^ VRfd VWRZV5? 2T\_e\_e  
`WhVR\_fTjVZe` e`hYVcTYR\_XdZ TYc ^ `d ^ V\_f^ SVc  
hVVT\_dhV\_ehZy` eVYja` eVZMUac` TdVZ5fa|ZIRZ\_ `c  
]` d` WYc ^ `d ^ VhRdMaVtUe` dV` jZ TYR\_XdZ` e` d] 5? 2  
T\_e\_e` dhYZdeCS` e` d` TRZ\_` hRdMaVtUe` YRgV\_` dX` Z` TR\_e  
WVte` \_` eV` e` d] 5? 2T\_e\_e` e` AVtj` et al. #! !%Z

Methods

EcWhVRRV~ZYeVdLRS` dRjL` Tf` c` RjL` ^` \_Z` dVdVRef` dV  
Y` jVdZ` eWaf` \_` d` RUVSj` h` `` Uis` cZ` XSWeVjRgRve` YZUVf` c

lj dZ XDj dV^ 1A2D hRdV a] j VUf dZ X} |eC T ^ SZ RZ\_d`W  
 F8 "LE-%#! LE-&! LR U88%&&R UR^ VIF g R TjR^ a 193@  
 "!! HZ#Z7ZgVeY f dR\_U\_f TjVzhV^ V Rf dUWcVRiYhV R Laf d  
 Z eC Rj dR UR U1o#&! W^ VRIY/Z5? 2 hRd dRZ VUh ZY 52A:L  
 hYZY ZIR \_ Z eC RjRZ Xj V eR sZ U d aC WcV eR j] e 2IESR d d  
 Z eZ d eV WcV \_ e Raac aC Z eV e T \_ gV e5? 2 ^ V Rf dV V e d Z e  
 aZT XR^ dZ: Y d e \_ et al 1"\*\*\* / dY h eY R Z XV V R L XV ^ V  
 dZ V V eZ R e d f d Z X52A: R X W U h V j] h Z Y eY dV` S e R Z W f d Z X  
 ` eV c~f` c` Tyc ^ V eZ 8V ^ V d Z V R V a d V e U R d e V R e Z ` W  
 eYV^ VR \_ f TjV Z d V W e V Z d V e T e T ^ a R U e eY V d W c V T V R U  
 eY V W e V R cV \_ j T ^ a R S j V h Z Y Z e Z d f U j Z

2 g r Z j ` W d f V j a d W ^ eY h V e R h V e c Z U E Z j f U Z X e S Z R  
 Z e d Z V R U ^ R j a Z Y R d f S j V d S W c V e V R e V \_ R h R d M V I e U  
 W c ~ h T j e ^ V e Z T R R j d Z 4 V j d W ^ eY V R e V \_ R` W R U F j e h V e R  
 h V e d M U ^ Z d R V 8 # ` W Z e d I R U d e Y Z e d f V X R V R d Z X V  
 a R ` W f T j V Z Z 8! z 8 " Z 2 \_ e V \_ R e Z h V Y R d e V R U U R U R g R d X d  
 eY R e Z e Z f \_ j V j e S V T \_ e R Z R e U h Z Y T j] d W ^ a R R d a d ` c  
 W U a j R e d R U d R^ a j V d I R S V e R V h Z Y f e ` Z j Z X e V Z d V e Z j]  
 ~ h T j e ^ V e j d f j e d a d V e U R e W ^ R e V \_ R e Z h V e R V S W e V  
 T j I Y Z Z V e R e V d R U f d U h Z Y Z " Y ` W j] V e Z \_ Z 2 R j d d W  
 g R Z R T V i \_ V h R j 2? @C2/ h R d a V e W^ U d a R R e V j W e e V e h`  
 d M V d i a j R \_ U T ^ a R Z d \_ d ` U M :: / f d Z X D A D g V c Z \_ "" Z Z Z

Results

7 c H. crassidens1" & Tyc ^ ` d ^ V d R I V e V I Tyc ^ ` d ^ V Z I  
 R a a c i Z R e V j "" ` ` W e V ^ R j V X V ^ ^ V Z E Y Z I Z I T \_ d e V e h Z Y  
 V e Z R e d W ^ ^ V R f c Z X a j R Z d R Z V U Tyc ^ ` d ^ V d e Y R e R V  
 S V h W "" Z e 1" & Tyc ^ ` d ^ V d R I V R U " ! " ` ` W e V ^ R j V X I  
 \_ ^ V i " \* I Tyc ^ ` d ^ V d R I V > ` c X R I C Z I Y R U d " \* \* & L # ! ! / Z 7 c  
 H. thoracica V e Z R e d ` W e V d K V ` W e V Z e I Tyc ^ ` d ^ V S R M j  
 ` \_ ~ h T j e ^ V e j L e R X V W ^ \* Z ` e " # ` W e V ^ R j V X V ^ ^ V  
 1 7 Z Z S / Z E Y V d V } X c d R e V d Z Z R e V e Z R e d W ^ ^ V R f c V V e d  
 ` W a j R Z d R Z V U Tyc ^ ` d ^ V d V S V h W \_ \* Z % R U " S Z # 1 > ` d  
 X R I C Z I Y R U d " \* \* ( / Z E Y V e V R e Z V 5 ? 2 T \_ e V e W e V # d R I V d W I  
 c r a s s i d e n s 1 h Z Y Z e Y V e R X V W I . t h o r a c i c a e R S j V " / Z

EYV Tyc ^ ` d ^ R j d R I V d W I . t h o r a c i c a d a c d V e U Z e Y Z d f U j  
 U Z W c Z c V R e Z V 5 ? 2 T \_ e V e i 2 ? @ C 2 + ^ R j V d U W S L 7 . & Z L a -  
 ! Z ! " , W R j V d U W S L 7 . " ) Z L a - ! Z ! " L Z E Y V " S I Tyc ^ ` d ^ R j  
 d R I V Y R d e V R e Z V j ^ ` c V 5 ? 2 e Y R e V e V e S Tyc ^ ` d ^ R j d R I V L  
 h Y Z I Y U \_ e U Z W c d Z Z T R e j W ^ V R I Y ` e Y V e 1 2 ? @ C 2 + ^ R j V d  
 U W # L 7 . % Z L a . ! Z & , W R j V d U W # L 7 . # Z L a . ! Z \* / Z E Y V " &  
 R U " ( I Tyc ^ ` d ^ V d R I V d U Z W c S j R y a ` e V d Z M d Z X V C S e R d  
 j T R e Z \_ , Y h V g c e V " S R U " & L ( R U " \* a R Z d h V e V a d V e Z f d j  
 eY f X Y e e U Z W c W ^ V R I Y ` e Y V e S j R d Z X V U f a j Z R e Z \_ z j d d V R  
 d R j] R I c T V Y e T R e d ^ V 1 7 Z Z / Z @ \_ R g V R V e V " S I R j ` g a V  
 Y R d e V R e Z V j ^ ` c V 5 ? 2 e Y R e V e V e R j ` g a V d e Y Z U Z W c V T V  
 d R X d W ^ R a a c i Z R e V j & ` W e V W R j V X V ^ ^ V 1 S V h W \_  
 "% I I / R U " ! I I // e "" ` ` W e V ^ R j V X V ^ ^ V 1 S V h W \_ " S i I @ / Z

EYV%Tyc ^ ` d ^ R j d R I V d W I . t h o r a c i c a d a c d V e U Z e Y Z d f U j  
 U Z W c Z c V R e Z V 5 ? 2 T \_ e V e i 2 ? @ C 2 + ^ R j V d U W S L 7 . & Z L a -  
 ! Z ! " , W R j V d U W S L 7 . " ) Z L a - ! Z ! " L Z E Y V " S I Tyc ^ ` d ^ R j  
 d R I V Y R d e V R e Z V j ^ ` c V 5 ? 2 e Y R e V e V e S Tyc ^ ` d ^ R j d R I V L  
 h Y Z I Y U \_ e U Z W c d Z Z T R e j W ^ V R I Y ` e Y V e 1 2 ? @ C 2 + ^ R j V d  
 U W # L 7 . % Z L a . ! Z & , W R j V d U W # L 7 . # Z L a . ! Z \* / Z E Y V " &  
 R U " ( I Tyc ^ ` d ^ V d R I V d U Z W c S j R y a ` e V d Z M d Z X V C S e R d  
 j T R e Z \_ , Y h V g c e V " S R U " & L ( R U " \* a R Z d h V e V a d V e Z f d j  
 eY f X Y e e U Z W c W ^ V R I Y ` e Y V e S j R d Z X V U f a j Z R e Z \_ z j d d V R  
 d R j] R I c T V Y e T R e d ^ V 1 7 Z Z / Z @ \_ R g V R V e V " S I R j ` g a V  
 Y R d e V R e Z V j ^ ` c V 5 ? 2 e Y R e V e V e R j ` g a V d e Y Z U Z W c V T V  
 d R X d W ^ R a a c i Z R e V j & ` W e V W R j V X V ^ ^ V 1 S V h W \_  
 "% I I / R U " ! I I // e "" ` ` W e V ^ R j V X V ^ ^ V 1 S V h W \_ " S i I @ / Z

Discussion

CS e R d j T R e Z \_ d R e V \_ e V a V I e U e T Y R X V e V e d j 5 ? 2  
 T \_ e V e R U ^ L

Fig 3



> R\DIRIYZ @Š DIRJZ GŠ KFTT eZ > Ž"\*\*) Ž 7\ h1Tj e ^ VēZT R\_Rj dVd  
 `VZ eRchVIZ T XV `^ V dKv gRZēZ \_d Z\_ Bacillus atticus 1:\_dVēL  
 AYRf Rē UVRZSV `^ V%+! #\*! S&Z  
 > `cR ICZYRUd > Š"\*\*\*gZ2 \_Vh dVIZd `WēWhVēR W^ ēV?` cēY  
 :dR U` W? Vh KVRJRU 19V^ ZUZ R+ DēV` aV^ RēURV+@cēY aēVRZ  
 ? Vh KVRJRU 6\_e `^ `] XZē")+" &#%Ž  
 > `cR ICZYRUd > Ž"\*(Z\_eRthVIZ T Rj `g aVgRZēZ \_ZL `eT \_T dR\_e  
 hZēY Rj\ kj^ V gRZēZ \_Z ēV 2fT\]R\_U cēWhVēR `W? Vh KVRJRU UL  
 Hemideina thoracica1@cēY aēVR+DēV` aV^ RēURVZ3Z ] XZIR;` f\_c\_Rj  
 `VAV=Z\_VR D TZēj '!+%#S!%#Z  
 > `cR ICZYRUd > Ž#!! Ž` Svēd \_Z\_ cR\_dj TRēZ \_dR\_U3TYc `^ `d ^ Vd  
 Z\_ ēV HVj]Z Xē \_ cW hVēR Hemideina crassidens 1@cēY aēVR+  
 2\_` dē dē ^ RēURVZ9 VēUZRd" S#+%#1&%Z  
 > `cR ICZYRUd > ŽEchZT DZŽHRjZ18 ŽŽ#!" ŽAYc `^ `d ^ VēRIVhZēY  
 A]Z TV\_V` cZz dVgZUV\_TVW^ ^ e5? 2Ž9 VēUZēj )' +S! S!S' #Z  
 > `cR ICZYRUd > ŽHRjZ18 ŽŽ#! SŽ2 T ^ aRēZi \_` WgVYj SēZUk \_Vd' W  
 ēVhVēRHemideinathoracica1@cēY aēVR+2\_` dē dē ^ RēURV+5 VēW W  
 Tj ē XV VēTUWVēV ēRēZ \_WZdē acVUZēYj SēZUk \_VhZēYZēg jf eZ \_  
 &(+) %81) ' " Ž  
 AVēj ;ZDRAc9 ZL4Y ` < Ž ŽŽ#! %ŽAV\_eZT) dZ \_ l dZ\_ a]VR\_ UT ^ a]M  
 ^ VIYR\_Zi cZAYc `^ `d ^ VCVRēY" #+ #(' % Ž  
 CZdSVēX=Z Ž#!" ŽAYc `^ `d ^ VēVRēR\_XV` V\_e dR\_UchVIZēZ \_ZēV\_Ud  
 Z\_ 6T ] Xj R\_U6g jf eZ \_ "' +S&1S& Ž  
 DēVd; ŽHē >` cZk4Z\*) (ŽAYc `^ `d ^ RjVg jf eZ \_R\_UchVIZēZ \_ cVgZēMŽ  
 Ij dēV RēZTK `] Xj S' + " &S!" (% Ž  
 D jRz2ZŽ' \*\*\*Zj \_Raē \_V RjT ^ a]M R\_Rj dZL Yf ^ R\_ ^ RjVZ WēZēj Ž  
 6f c aVR\_ ;` f\_c\_Rj `V0 Zē TYV^ Zēkj %S+# &#('  
 HYZV > ŽZē Ž"\*( ) Ž> ` Uvd` VdVIZēZ \_Zi Ž Ž7cW^ R\_ IIR\_ 7cR TZIT Ž  
 HRjRIV3Zē Ž Ž#! SŽEYVWWWē` WVēc kj X dēj LXV\_ZT` cTYc `^ `d ^ RjL  
 ` \_ WēZēj Z\_ ēVT ^ ^ ` \_ dYch 1Srexeareus` R\_ UY` f dV^ ` f dV Mus  
 musculus domesticus Ž> R' ^ RjR' (+S! " IS! ' Ž