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Abstract

The longstanding impression that hybrid mice are more highly parasitized and therefore less fit than parentals persists despite the findings of recent studies. Working across a novel transect of the European House Mouse hybrid zone we assessed intracellular infections by *Eimeria*, a parasite of high pathogenicity, and infections by pinworms, assumed to be less pathogenic. For *Eimeria* we found lower intensities in hybrid hosts than in parental mice but no evidence of lowered probability of infection in the centre of the hybrid zone. This means ecological and epidemiological factors are very unlikely to be responsible for the reduced load of infected hybrids. Focussing on parasite intensity (load in infected hosts) we also corroborated reduced pinworm loads reported for hybrid mice in previous studies. In addition we questioned whether differences in body condition during infection would indicate different impacts on hybrid vs. parental hosts' health. We couldn't show such an effect. We conclude that intensity of diverse parasites, including the previously unstudied *Eimeria*, is reduced in hybrid mice compared to parental subspecies. We suggest caution in extrapolating this to differences in hybrid host fitness in the absence of, for example, evidence for a link between parasitemia and health.

Keywords: parasites, hybridization, resistance, eimeria

Introduction

Hybrid zones can be studied over decades and allow inference regarding the impact of the different endogenous and exogenous forces at play in the process of hybridization (Barton & Hewitt, 1985). The European house mouse hybrid zone (HMHZ) is a tension zone characterized by selection against hybrids replaced by immigrating less admixed mice (Barton & Hewitt, 1985). After ~500 000 years of (mostly) allopatric divergence two house mouse subspecies, *Mus musculus domesticus* and *Mus musculus musculus* (hereafter Mmd and Mmm), have come into secondary contact in Europe as a result of different colonization routes south and north of the Black Sea, respectively (Boursot, Auffray, Britton-Davidian, & Bonhomme, 1993; Duvaux, Belkhir, Boulesteix, & Boursot, 2011). The HMHZ is about 20 km wide and more than 2500 km long, running from Scandinavia to the coast of the Black Sea (Baird & Macholán, 2012; Boursot, Auffray, Britton-Davidian, & Bonhomme, 1993; Jones, Kooij, Solheim, & Searle, 2010; Macholán, Kryštufek, & Vohralík, 2003). This zone represents a semi-permeable barrier to gene flow between the two taxa (Macholán et al., 2007; Macholán et al., 2011). The main selective forces acting against hybrids are thought to be endogenous rather than ecological (Baird & Macholán, 2012; Boursot, Auffray, Britton-Davidian, & Bonhomme, 1993), for example disruption of spermatogenesis in hybrids (Albrechtová et al., 2012; Turner, Schwahn, & Harr, 2012).

The relevance of hybridization, producing individuals admixed between genetically distinct populations, is increasingly recognized by biologists. Mallet (2005) suggested that hybridization occurs in more than 10% of animal species and 25% of vascular plant species. Recently, the realization that our own species is a product of hybridization has raised interest further (Green et al., 2010). In a conservation context hybridization with introduced species can threaten autochthonous endangered animals (Simberloff, 1996). Parasites are omnipresent in natural systems and so it is important for biologists interested in hybridization to comprehend the interplay between parasites and hosts under hybridization.

The HMHZ was one of the first animal hybrid zones studied for differences in parasite loads (Sage, Heyneman, Lim, & Wilson, 1986). Parasites are traditionally seen as decreasing their hosts' fitness, and differences in resistance to parasites between hybrid and pure hosts was suggested to affect the dynamics of hybrid zones (Fritz, Moulia, & Newcombe, 1999). This traditional framework postulates differences in parasite loads in hybrids vs. parental hosts to result in effects on the strength of host species barriers.

Initial results on parasites obtained in the HMHZ and experimental studies seemed to indicate elevated parasite loads in hybrids. This has been interpreted as potentially leading to fitness reductions in hybrids, hampering hybridization and thus reinforcing species barriers (Moulia et al., 1991; Moulia, Le Brun, Dallas, Orth, & Renaud, 1993; Sage et al., 1986). Infection experiments using the protozoan *Sarcocystis muris* led to a similar conclusion (Derothe, Le Brun, Loubes, Perriat-Sanguinet, & Moulia, 2001). Other laboratory experiments, however,

effect of cross-species F1

cross-species F1 mice

showed either no hybrid effect on helminth load or even reduced load in hybrids compared to pure mouse strains (Derothe, Porcherie, Perriat-Sanguinet, Loubès, & Moulia, 2004; Moulia, Le

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Brun, Loubes, Marin, & Renaud, 1995). The field study with arguably the highest statistical power found reduced helminth loads (especially the pinworms *Aspiculuris tetraptera* and *Syphacia obvelata* and the whipworm *Trichuris muris*) in hybrid mice (Baird et al., 2012). It should also be noted that the design of the field studies preceding the Baird et al. (2012)

reappraisal usually suffered from low sample sizes and/or maintenance of mice under laboratory conditions before assessment of parasite burden, which may have allowed spurious signal to dominate the results. Nevertheless, even the basic direction of parasite load differences in hybrid mice compared to parental genotypes seems still controversial to some researchers.

We now see that, despite working within the framework of the same hybrid zone, two different interpretations of parasite loads in hybrid mice have arisen. One way forward in such circumstances is to check over replicates. To distinguish between the load interpretations we therefore, in a new transect replicate of the HMHZ, asked if (1) parasite loads are higher or lower in hybrids compared to parentals, and (2) if these loads are consistent, or differ, across two levels of pathogenicity DEF

Pinworms (oxyurids) have been shown to be the most prevalent helminths infecting house mice in the HMHZ (Goüy de Bellocq, Ribas, & Baird, 2012). They are broadly distributed, can reinfect their hosts throughout their lives, and may be considered almost non-pathogenic (Taffs, 1976). *Eimeria* spp. are often considered host-specific, with several thousand species parasitizing different vertebrates (Chapman et al., 2013; Haberkorn, 1970). These parasites infect the intestinal epithelial cells of vertebrates and induce symptoms such as weight loss and diarrhoea. For example, infecting the NMRI mouse laboratory strain with *Eimeria* oocysts isolated from mice captured in the HMHZ resulted in a weight loss up to 20% compared to control (Al-khlifeh et al., 2019). Work in wild rodents indicates high pathogenicity of *Eimeria* spp. under field conditions: in populations of bank voles (*Myodes glareolus*), *Eimeria* spp. reduce body condition of both mothers and of offspring at birth (Hakkarainen et al., 2007). In deer mice these *Eimeria* affect overwinter survival of males (Fuller & Blaustein, 1996). In the European HMHZ, three *Eimeria* species have been identified: *E. ferrisi*, *E. falciformis*, and *E. vermiformis* with prevalences of 16.1%, 4.2% and 1.1%, respectively (Jarquín-Díaz et al., 2019).

We assessed *Eimeria* infection in a novel transect of the HMHZ in Brandenburg, northeastern Germany, testing the impact of host hybridization on intensity of this parasite. By focussing on parasite intensity (extent of parasite infection in only infected hosts; Bush et al. 1997), we arguably exclude ecological and epidemiological factors for differences in load (i.e. parasite prevalence and abundance, the latter defined as parasite load in all hosts). We show that (1) parasite loads are consistently lower in hybrids compared to parental genotypes in the HMHZ and (2) that this pattern is consistent across two different levels of pathogenicity.

Material & Methods

Sampling

Our sampled individuals consist of 660 house mice trapped using live traps placed in farms or houses between 2014 and 2017. The study area ranges from 51.68 to 53.29 degrees of latitude (200 km) and from 12.52 to 14.32 degrees of longitude (140 km). Each year mice were trapped in September when it is possible to capture a high number of mice in this region. In addition, sampling at the same season every year reduces potential seasonal variation (Abu-Madi, Behnke, Lewis, & Gilbert, 2000; Haukisalmi, Henttonen, & Tenora, 1988). The trapping was designed to capture both parental and hybrid/recombinant populations. Mice were individually isolated in cages and then euthanized by isoflurane inhalation followed by cervical dislocation and dissection within 24 hours after capture (animal experiment permit No. 2347/35/2014). Tissue samples (muscle and spleen) were put to liquid nitrogen and stored at -80°C for subsequent host genotyping. Digestive tracts were dissected and inspected for helminth parasites (see below). Ileum, caecum and colon tissues were frozen in liquid nitrogen and then stored separately at -80°C. Individual mice were measured (body length from nose to anus) and weighted.

Host genotyping

The admixture proportion of mouse genomes across the HMHZ was estimated for each mouse as a value of the hybrid index (HI) calculated as a proportion of Mmm alleles in a set of 4-14 diagnostic markers (at least 10 loci in 92% of the mice). This set consists of one mitochondrial marker (*Bam*HI, a restriction site in the *Nd1* gene; Božíková et al., 2005; Munclinger, Božíková, Šugerková, Piálek, & Macholán, 2002), one Y-linked marker (presence/absence of a short insertion in the *Zfy2* gene; Boissinot & Boursot, 1997; Nagamine et al., 1992), six X-linked markers (three B1 and B2 short interspersed nuclear elements in *Btk*, *Tsx* (Munclinger, Boursot, & Dod, 2003), and *Syap1* (Macholán et al., 2007), *X332*, *X347* and *X65* (Dufková, Macholán, & Piálek, 2011; Ďureje, Macholán, Baird, & Piálek, 2012)), and six autosomal markers (*Es1*, *H6pd*, *Idh1*, *Mpi*, *Np*, *Sod1*; Macholán et al., 2007). HIs ranged from 0 to 1, HI of 0 indicating a pure Mmd and HI of 1 a pure Mmm (Baird et al., 2012; Macholán et al., 2007).

The course of the HMHZ across the study area was estimated using the program Geneland v4.0.8 (graphical resolution increased over defaults) based on a subset of the six autosomal markers that were genotyped in all mice. Geneland uses a Markov chain Monte Carlo (MCMC) approach to combine both geographical and genetic information (Guillot, Mortier, & Estoup, 2005). The number of clusters was set to 2, 10^6 MCMC iterations were performed and saved every 100th iterations (10^4 iterations saved). The first 200 iterations were discarded as burn-in and the resolution of the map was set to 2000 pixels for the x axis and 1400 for the y axes corresponding roughly to 1 pixel for 100m (Macholán et al., 2011).

Parasite load estimation

Mouse digestive tracts were dissected and inspected for helminth presence with a binocular microscope. Helminths were counted and stored in 70% ethanol for later identification by molecular analysis and, when more than one worm per host was present, in 3.5% formalin for later morphological comparison with species descriptions. In this study we considered only the most prevalent helminths, the oxyurids *Syphacia obvelata* and *Aspiculuris tetraptera*.

DNA was extracted from ileum and caecum tissues and quantitative PCR (qPCR) was used for estimation of *Eimeria* spp. load. DNA extraction was performed using the innuPREP DNA Mini Kit (Analytik Jena AG, Jena, Germany) following the instructions of the manufacturer with additional mechanical tissue disruption with liquid nitrogen in a mortar. Both quality and quantity of isolated DNA were measured by spectrophotometry in a NanoDrop 2000c (Thermo Scientific, Waltham, USA). The presence of *Eimeria* spp. was tested using qPCR to detect intracellular stages of the parasite as well as house mouse house keeping gene as internal reference. Primers used for *Eimeria* spp. detection targeted a short mitochondrial *COI* region (Eim_COI_qX-F: TGTCTATTCACTTGGGCTATTGT; Eim_COI_qX-R: GGATCACCGTTAAATGAGGCA), while *Mus musculus* primers targeted the *CDC42* nuclear gene (Ms_gDNA_CDC42_F: CTCTCCTCCCCTCTGTCTTG; Ms_gDNA_CDC42_R: TCCTTTTGGGTTGAGTTTCC). Reactions were performed using 1X iTaqTM Universal

SYBR® Green Supermix (Bio-Rad Laboratories GmbH, München, Germany), 400 nM of each primer and 50 ng of DNA template in 20 µL final volume. Cycling amplification was carried out in a Mastercycler® RealPlex 2 thermocycler (Eppendorf, Hamburg, Germany) with the following amplification program: 95°C initial denaturation (2 min) followed by 40 cycles of 95°C denaturation (15 s), 55°C annealing (15 s) and 68°C extension (20 s). Melting curve analyses were performed in order to detect primer dimer formation and unspecific amplification. ΔCt was calculated as difference of the threshold cycle (Ct) between mouse and *Eimeria* spp. values (corresponding to a log2 ratio between parasite and mouse DNA). We considered ΔCt = -5 our limit of detection (Ahmed et al., 2019; Jarquín-Díaz et al., 2019). Samples with a ΔCt lower than -5 were considered negative (unspecific signal due to amplification of non-target DNA). Samples with a ΔCt higher than -5 for at least one of the two intestinal tissues were considered positive, and in the case of detection in both tissues, the higher value was taken as a proxy of individual parasite load. This parasite load of the intestinal tissue stage is denoted as "$\Delta Ct_{Mouse-Eimeria}$" throughout this paper.

General parasite assessment

As the distributions of parasite loads are expected to be highly skewed (Bliss & Fisher, 1953), the median (as an estimator for the mode) is more informative than the mean (Rózsa, Reiczigel, & Majoros, 2000). We therefore took the median of parasite load across all hosts (median abundance) and of parasite load of infected host (median intensity) for pinworms, and only median intensity for *Eimeria* spp. As the distributions of parasite loads are expected to be highly skewed (Bliss & Fisher, 1953), the median (as an estimator for the mode) is more informative than the mean (Rózsa, Reiczigel, & Majoros, 2000). We therefore took the median of parasite load across all hosts (median abundance) and of parasite load of infected host (median intensity) for pinworms, and only median intensity for *Eimeria* spp. Prevalence (relative frequency of infected individuals amongst all tested individuals) confidence intervals were obtained with Sterne's exact method (Reiczigel, Földi, & Ozsvári, 2010; Sterne, 1954). Calculations were performed using the epiR package (Nunes et al., 2018) running within the R statistical computing environment (R Development Core Team, 2008).

Statistical prediction of probability of infection by parasites along the hybrid zone

The parasite infection process can be split into two components: probability of infection, and parasite burden following infection. Absence of parasite in a given host can result from either absence of exposure to parasite or complete host resistance, while quantitative parasite load depends on intrinsic host or parasite components or their interactions. These two components rely on different mechanisms, and therefore should be assessed separately (Poulin, 2013).

Firstly, we considered the predicted probability of infection along the HI. We used a proxy of "genetic distance to zone centre": for individuals with HI between 0 and 0.5 the proxy is HI, for individuals with HI between 0.5 and 1 the proxy is 1 – HI. This was used to model a dichotomous response variable (uninfected = 0; infected = 1) by logistic regression, as a linear combination of the predictor variables "genetic distance to zone centre" and "Sex" (including interactions). Analyses were done in R with the function glm from the stats package (R Development Core Team, 2008).

Statistical test of the host hybridization effect on parasite intensity

Secondly, it has been shown that macroparasites tend to aggregate within their hosts, the majority of host carrying no or a low burden, and a minority a high one (Shaw & Dobson, 1995). We modelled this distribution of parasite burden in infected hosts as negative binomial. Following the approach of Baird et al. (2012), we tested if hybrid mice had higher or lower parasite burdens than that expected in case of additivity (if the relationship between host parasite load and hybrid index was linear). The hybridization level on each individual was modelled as the degree to which new gene combinations are brought together compared to the pure subspecies. This was estimated from the hybrid index using the function for expected heterozygosity (Baird et al., 2012):

$$He = 2 \cdot HI \cdot (1 - HI)\,, \qquad (Eq.\ 1)$$

The parasite load for a given HI was then estimated as follows:

$$ExpectedLoad = (L1 + (L2 - L1) \cdot HI) \cdot (1 - alpha \cdot He)\,, \qquad (Eq.\ 2)$$

where L1 is the parasite load of pure Mmd, L2 the parasite load of pure Mmm, and alpha the hybridization effect (deviation of parasite estimated load from the additive model). We considered four nested hypotheses increasing in complexity, and compared them with the G-test (likelihood ratio test) to consider a more complex hypothesis only when justified by a significant increase in likelihood. Expected parasite load is fixed to be identical for both subspecies and both host sexes in hypothesis H0. The more complex H1 allows load differences for the host sexes, H2 allows different loads between the subspecies at the extremes of the hybrid index, and H3 allows differences both between the subspecies and sexes.

Adequate distributions of values for each parasite and detection method considered were selected using log likelihood and AIC criteria and by comparing goodness-of-fits plots (density, CDF, Q-Q, P-P) (R packages MASS (Venables & Ripley, 2002) and fitdistrplus (Delignette-Muller & Dutang, 2015). The negative binomial distribution should perform well for macroparasite counts (Crofton, 1971; Shaw & Dobson, 1995), which was confirmed for helminths (Baird et al., 2012). Values of ($\Delta Ct_{Mouse-Eimeria}$) were found to be well described by the Weibull distribution after being positively shifted.

The Negative Binomial distribution is parameterized by two arguments: its expectation (Expected Load, Eq. 2), and the inverse of its aggregation defined, which is allowed to vary across HI as:

$$\text{Aggregation} = (A1 + (A2 - A1) \cdot HI) + Z \cdot He\,, \qquad \text{(Eq. 3)}$$

Z being the deviation from the additive model, in proportion to *He*, which is maximal in the zone centre (Baird et al., 2012). The Weibull distribution is parametrized by its shape and scale parameters (allowed to vary freely during maximum likelihood search) linked by the formula:

$$\text{Scale} = \text{ExpectedLoad} \,/\, \Gamma\,(1 + 1/\,\text{shape})\,, \qquad \text{(Eq. 4)}$$

Γ being the gamma function.

We fit the models using likelihood maximisation (using the R package mle2; Bolker, 2017). Parasite load was estimated either including or excluding the hybridization effect parameter (by setting HI = 0 in *ExpectedLoad*), and we compared these two models using the G-test. In the case of $\Delta Ct_{Mouse-Eimeria}$, the Weibull distribution requires positive values as input. Therefore, we estimated an extra "shift parameter" by maximum likelihood at 7.14.

Test of body condition differences between infected and non-infected mice along the hybrid zone

Residuals from ordinary least squares regression of body weight by body length were estimated for each individual, separately for males and females. Pregnant females were excluded from the analysis. Individuals with a positive residual were considered in better condition than individuals with a negative one, as this index correlates with variation in fat, water, and lean dry mass (Schulte-Hostedde, Zinner, Millar, & Hickling, 2005). We tested if hybrid mice had higher or lower residuals than that expected for intermediate between pure hybridizing taxa ("additivity"), and if the potential hybridization effect was different between infected and not infected mice, for *Eimeria* spp. as well as for pinworm infections. Differences between the subspecies were allowed.

Values of residuals of body weight by body length regression are well described by the Normal distribution, parametrized by its standard deviation (allowed to vary freely during maximum likelihood searches) and its mean defined as:

$$ExpectedResidual = (R1 + (R2 - R1) \cdot HI) \cdot (1 - alpha \cdot He) , \quad (Eq.\ 5)$$

where R1 is the expected residual value of pure Mmd, R2 the expected residual value of pure Mmm, and alpha the hybridization effect.

We fit the models using maximum likelihood (using the R package mle2; Bolker, 2017), either including or excluding the hybridization effect parameter (by setting HI = 0 in *ExpectedResiduals*), and we compared these two models using the G-test.

All graphics were produced using the R packages ggplot2 (Wickham, 2016) and ggmap (Kahle & Wickham, 2013), and compiled using the free software inkscape v.0.92 (https://inkscape.org).

Results

Host genotyping and characterization of the HMHZ for a novel transect

We caught and genotyped a total of 660 mice (363 females, 297 males) over four sampling seasons (2014: *N*=87; 2015: *N*=163; 2016: *N*=167; 2017: *N*=243) at 154 localities. A median of 2 mice per locality were captured. A list of individual hybrid indices, georeferences, and parasite loads is available in Supplementary Table S1. As shown in Fig. 1, the HMHZ runs across the former East Germany, making a broad arc around the city of Berlin, approaching within ca. 20 km of the bordering Oder River near Eberswalde.

Parasite prevalence and intensity

To investigate *Eimeria* infections we checked 384 mice sampled in 2016 and 2017 for the presence and intensity of tissue stages (Fig. 2a). The estimated parasite prevalence was 18.2% (70/384) (Sterne's Exact method CI 95%: [14.5, 22.5]). To quantify the intensity of infection we determined the amount of *Eimeria* mitochondrial DNA per host nuclear DNA using $\Delta Ct_{Mouse-Eimeria}$. The median *Eimeria* intensity was -2.4 corresponding to 5.2 times less parasite mitochondrial DNA than host nuclear DNA.

Between 2014 and 2017, 585 mice were investigated for helminths (Fig. 3a). Prevalence of pinworms in the transect was 52.5% (307/585) (Sterne's Exact method CI 95%: [48.4, 56.5]) with a median abundance of 1 pinworm per mouse and median intensity of 13 pinworms per infected mouse (maximum number of pinworms in one host: 489).

Similar prevalence of parasites across the zone

In order to control for the simple case of a host density trough at the zone centre, we tested if the probability of being infected was significantly lower for individuals at the host zone centre. Logistic regression using a linear combination of the predictor variables "genetic distance to zone centre" and "Sex" (including interactions) didn't show any statistically significant effect ($p > 0.05$) on the probability of infection, neither for *Eimeria* spp. (Fig. 2b) nor for pinworms (Fig. 3b). We therefore could not find evidence of significantly more or less uninfected hosts in the centre hybrid zone, neither for *Eimeria* nor pinworms.

***Eimeria* spp. load is lower in infected hybrid vs pure Mmm and Mmd mice**

To test more specifically the intrinsic host-parasite interplay of hybrids compared to pure mice, we considered only individuals infected by *Eimeria* spp. tissue stages ($N = 70$). Complex models involving differences between sexes and parental taxa did not fit the data significantly better than the null model (Supplementary Table S2). The fit involving the hybridization effect, however, showed significantly higher likelihood than the model without it (G-test; p-value = 0.02). Infected hybrids had significantly lower load of *Eimeria* spp. tissue stages than expected if the load was linear along the hybrid index, with a hybridization effect parameter alpha of 0.74 (Fig. 2d, values of parameters of the fitted model given in Table 1).

Pinworm load is lower in infected hybrid vs. pure Mmm and Mmd mice

We tested pinworm intensity (N = 307) in infected hybrids comparing them to infected 'pure parental' mice in our Brandenburg transect, excluding potential ecological and epidemiological confounders in the same way. The model allowing differences between the parental taxa and sexes (H3) was found to fit our observations significantly better than the less complex models (Supplementary Table S2). For both sexes, the fit including the hybridization effect showed significantly higher likelihood than the model without it (G-test; p-value = 0.04 for females, p-value < 0.001 for males). Infected hybrids had significantly lower pinworm load than expected if the load was linear along the hybrid index, with the hybridization effect parameter alpha 0.91 (females) and 1.46 (males) (Fig. 3d, values of parameters of the fitted model given in Table 1).

Comparison of pinworms loads with previous reports

To compare the strength of the hybridization effect between our Brandenburg transect and the Czech-Bavarian portion of the HMHZ we applied the H1 model (differences between the taxa but not between the host sexes) to our pinworm abundance data, once with freely varying alpha (fit 1), and once with alpha set to 1.39 as in Baird et al. (2012) (fit 2). Within fit 1, alpha was found significant (G-test; p-value < 0.001). The comparison between the model with freely varying alpha (fit 1) and that using fixed alpha (fit 2) showed no significant likelihood difference (G-test; p-value = 0.11). Therefore, we can conclude that pinworm load differences found in hybrids in this study are consistent with the results obtained in the previously studied Czech-Bavarian transect (Baird et al., 2012).

No evidence of body condition differences between infected and non-infected mice along the hybrid zone

To test whether infections have a different effect in hybrids vs. parental mice we assessed body condition, which could be a better proxy for host health than parasite load. Modelling of the residuals from ordinary least squares regression of body weight by body length along the hybrid zone (Fig. 4a) did not show a statistically significant hybridization effect (G-test; p-value > 0.05 in both parasite datasets considered). When infected and non-infected individuals were considered separately, neither *Eimeria* spp. infected individuals (G-test; p-value = 0.58) nor *Eimeria* spp. non-infected individuals (G-test; p-value = 0.90) showed a hybridization effect in body condition index (Fig. 4b). The same was true for pinworm infected individuals (G-test; p-value = 0.44) or pinworm non-infected individuals (G-test; p-value = 0.96; Fig. 4c).

Discussion

We found lower intensities of the intracellular parasites *Eimeria* spp. and intestinal parasite pinworms in hybrid than in parental subspecies hosts in a previously unstudied transect of the European HMHZ. Lower intensity in hybrids is unlikely to be explained by epidemiological differences across the HMHZ, as we did not find the probability of infection to be similarly reduced in hybrid hosts.

House mouse hybrids are late generation in the European HMHZ (Macholán et al., 2007) and therefore should not be considered in categories, but rather on a continuous scale when analysing parasite infections or any other trait (Baird et al., 2012). We followed the statistical analysis of Baird et al. (2012) and explicitly modelled the effect of hybridization on parasite intensity by approximating the number of new combinations of genes brought together in a hybrid genotype by its expected heterozygosity (He). In other words we used He to derive non-linear predictions for hybridization effect based on the observed individual hybrid indices. This involved extending the existing approach to de-confound the prevalence and intensity aspects of parasite load. To increase reproducibility, we make our analysis available in an R package (Balard & Heitlinger, 2019). The package allows statistical modelling with distributions additional to the original negative binomial distribution for (worm) count data (Baird et al., 2012). This allowed us to model the intensity of *Eimeria* infections as measured by a recently established quantitative PCR (Ahmed et al., 2019; Al-khlifeh et al., 2019; Jarquín-Díaz et al., 2019).

To our knowledge no studies have previously tested the effect of mouse hybridization on parasites other than helminths in a field setting of the HMHZ. To understand parasite processes in host hybrid zones, it is necessary to sample across different axes, one of them being pathogenicity of the parasite. *Eimeria* is very likely more pathogenic than pinworms (Al-khlifeh et al., 2019; Fuller & Blaustein, 1996; Hakkarainen et al., 2007). The latter are common in laboratory facilities and often considered to provoke subclinical symptoms (Baker, 1998) while mice experimentally infected by both *E. falciformis* and *E. ferrisi* have shown weight loss and diarrhoea (Al-khlifeh et al., 2019). Yet the pattern of reduced load in hybrid hosts is the same for the two parasites. These findings confirm that reduction in parasite intensity is either an effect intrinsic to the host individuals (e.g. enhanced immune reactions leading to increased resistance), or, if dependent on the parasite and/or parasite-host interplay, can be generalized over very different parasite species with different pathogenicity.

Adding more evidence to the original observation of reduced parasite loads for previously investigated parasites, we also found reduced pinworms loads in hybrids of our novel transect of the HMHZ. Despite some differences between the Brandenburg and Czech-Bavarian transects in pinworm infection such as distinct loads between males and females and lower prevalence (52.5%) and abundance (18.7) in the former compared to the latter (no significant difference between sexes; prevalence 70.9%, abundance 39.18; Baird et al., 2012), both the direction and strength of the hybridization effect were very similar in the two study areas. Since in various portions of the HMHZ there may be different ecological and epidemiological conditions this similarity reinforces our confidence that reduced parasite load in hybrids is intrinsic to the individual host or host-parasite interplay rather than a by-product of epidemiology.

A novel aspect of our work compared to previous studies of parasitism in the HMHZ is the separate study of parasite prevalence and intensity. This approach should not only reduce problems in statistical inference caused by false negative measurements (so called zero-inflation) but also allows us to address two different questions separately: (i) Is the *probability* of infection different for hybrids and pure subspecies? and (ii): Is there a difference in parasite *intensity* between infected hybrid and infected pure individuals?

An illustrative example of an ecological factor that could potentially lead to epidemiological differences is the density of hosts. Densities of mouse populations in the HMHZ centre may be lower than outside (either due to selection against hybrids or because the HMHZ as a tension zone tends to be trapped in “density troughs” sensu Hewitt 1975). Host density is expected to be positively correlated with pathogen transmission (Anderson & May, 1979) and as a result prevalence may be higher in more dense populations (Morand & Guégan, 2000). This is, however, not a general law as host density and *Eimeria* spp. prevalence are, for example, negatively correlated in bank voles (Winternitz, Yabsley, & Altizer, 2012). Independent of the direction of the effect, correlation between abundance and prevalence could be confounded with intrinsic effects of hybrid hosts.

Our analysis of prevalence (presence/absence in a logistic regression), did not however show any significant decrease of this probability of infection towards the centre of the zone, for neither *Eimeria* spp. nor pinworms. We argue here that, in conjunction with higher intensities, this distinguishes intrinsic hybrid effects from potential ecological and epidemiological confounders.

Animals tolerant of low-pathogenic parasites might not suffer fitness reduction during high parasitemia. This could be the case, for example, if the parasite is beneficial for the host's interaction with other parasites (Heitlinger, Ferreira, Thierer, Hofer, & East, 2017) or if immune responses against the parasite are costly relative to the harm it causes (Råberg, Sim, & Read, 2007). In addition, according to the "Old Friend" (or "Hygiene") hypothesis, the constant presence of helminths in natural populations has led to the evolution of a background basal release of regulatory cytokines (Rook, 2009) which might in turn impact the outcome of more pathogenic infections. Even for relatively pathogenic parasites, such as *Eimeria,* differences in resistance could be uncoupled from health effects by differences in tolerance (Råberg et al., 2007). For these reasons parasite load in itself should not be blindly considered as a proxy for host health and certainly not for host fitness comparisons across hybrid zones (Baird & Goüy de Bellocq, 2019). We here used body condition as a proxy for the health component of host fitness.

We, however, did not find evidence for differences in body condition between hybrids and pure mice upon infection. We conclude that we do not have evidence that lower parasitemia in hybrids increases their health.

It is worthwhile expanding on the above. Intensity of a particular parasite infection is not necessarily correlated with reduced health and a fitness decrease. For example, the fitness of sterile hybrids (always zero) is invariant to infection intensity. Moreover a hybrid host could be robust due to heterosis (though it may still be sterile). Even if we had found increased health of hybrids, this would not be interpretable as leading to a higher total hybrid fitness, as the parasite mediated health fitness component is only one (likely minor) component of overall fitness. It has been shown for example that male mice in the HMHZ centre have reduced fertility compared to parental individuals (Albrechtová et al., 2012; Turner et al., 2012). If reduced parasite intensity is host driven (and not a result of host-parasite interactions) one could conclude that some physiological systems (e.g. reproductive) may be more dependent on "co-adapted complexes", while others – such as the immune system – benefit from diversity. This latter would be hybrid vigour in the narrow sense (Baird et al., 2012), but would still not necessarily lead to any effects on host species barriers (Baird & Goüy de Bellocq, 2019).

We can in future ask whether host (immunity and resistance) parasite (infectivity and virulence) or their interactions are underlying reduced parasite intensity in hybrid house mice. *Eimeria* spp. are suitable pathogens to perform experiments and field studies in this endeavour.

A prime candidate locus for mediating a positive effect of hybridization on the immune system (hybrid vigour) is the major histocompatibility complex (MHC). In mice two genes of the MHC showed different levels of polymorphism as well as population structure with many alleles inferred to be shared between the subspecies by maintenance of ancestral polymorphism (Čížková, Goüy de Bellocq, Baird, Piálek, & Bryja, 2011). Additionally, the small demes of house mice can function as reservoirs of MHC alleles, contributing to the diversity of this system across demes and populations (Linnenbrink, Teschke, Montero, Vallier, & Tautz, 2018). The genetic structure of the MHC and especially polymorphism shared across subspecies should make these loci good candidates to investigate for mechanisms behind hybrid vigour, among a number of other loci including Toll-like receptors (Skevaki, Pararas, Kostelidou, Tsakris, & Routsias, 2015). Previous work on toll-like receptor 4 already suggests different evolutionary patterns between the house mouse subspecies (Fornuskova, Bryja, Vinkler, Macholán, & Piálek, 2014). For host parasite interactions major candidate loci are immunity related GTPases on the host side and rhoptry kinases in coccidia (Lilue, Müller, Steinfeldt, & Howard, 2013).

Hybridization has played a significant role during and after the divergence of house mouse subspecies as well as during the formation of “classical inbred strains” (Yang et al., 2011). Improving our understanding of parasite process across the HMHZ provides valuable information on the house mouse as the model species with the most thoroughly understood immune system. A transfer of knowledge from this model might further understanding of the interplay between parasites and hybridizing species, our own as well as species relevant for conservation.

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Tables

Table 1. Parametrisation of fitted models. Parameters estimated by maximum likelihood for each dataset. Alpha is the hybridization effect (deviation of parasite estimated load from the additive model) given with its significance p-value. If sexes are separated, corresponding parameters for each sex are given with symbols ♀ and ♂. Nested hypotheses are as follow. H0: same expected load for the subspecies and between sexes; H1: same expected load across sexes, but can differ across subspecies; H2: same expected load across subspecies, but can differ between the sexes; H3: expected load can differ both across subspecies and between sexes. *Mus musculus domesticus* and *Mus musculus musculus* are named hereafter Mmd and Mmm.

Eimeria intensity	Hyp.	Alpha (p-value)	Load in ΔCt for both parental subspecies	Shape
present study	H0	0.74 (0.02)	-0.70	2.33

Pinworm intensity	Hyp.	Alpha (p-value)	Load in count Mmd	Load in count Mmm	Aggregation Mmd	Aggregation Mmm	Z parameter
present study	H3	♀ 0.91 (0.04) ♂ 1.46 (<0.001)	♀ 35.57 ♂ 30.38	♀ 68.67 ♂ 51.86	♀ 1.45 ♂ 2.10	♀ 2.00 ♂ 1.33	♀ -1.04 ♂ -1.23
present study (data from Baird et al. 2012)	H1	1.21 (<0.001)	94.37	46.81	1.88	1.34	-0.13

Figure legends

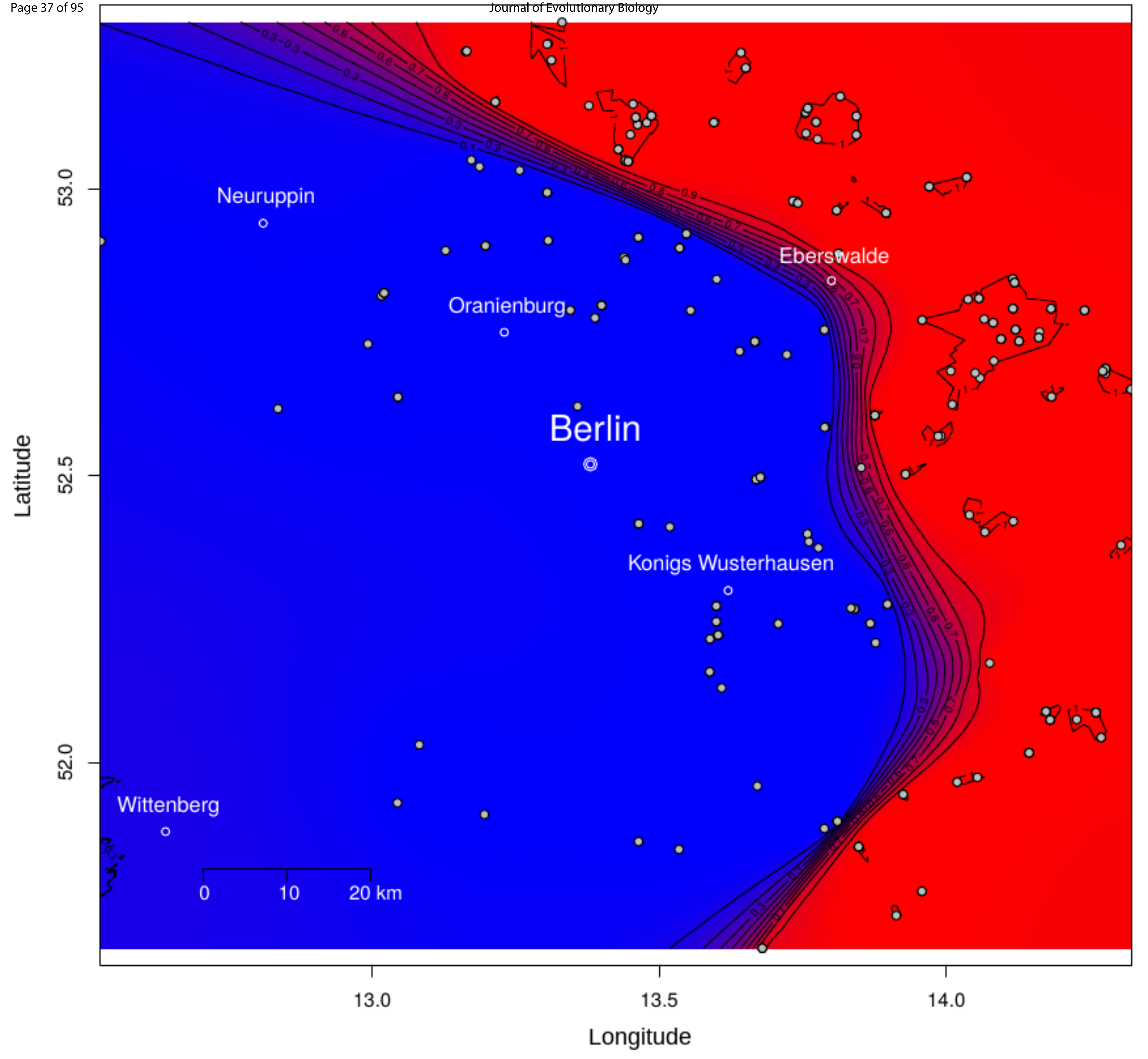
Figure 1. Geographic range of house mouse subspecies in the European house mouse hybrid zone. Spatial organization of the HMHZ was inferred using six autosomal markers (*Es1*, *H6pd*, *Idh1*, *Mpi*, *Np*, *Sod1*). *Mus musculus domesticus* is found west of the hybrid zone (blue), *Mus musculus musculus* east of it (red). The numbers at the level contours indicate posterior probabilities of population membership for each mouse subspecies. White dots represent each mouse included in the study.

Figure 2. Probability of infection is constant and intensity of *Eimeria* infection is reduced in hybrids. Individual mice tested for detection and quantification of *Eimeria* spp. tissue stages (a) and mice tested positive (c) are displayed on a map. The predicted probability of infection does not differ in more admixed mice (b) for males (green) and females (orange)(average observed probability of infection: grey dotted line). *Eimeria* intensity is reduced at intermediate values of the hybrid index (d), represented as a gradient ranging from 0 (pure Mmd, in blue) to 1 (pure Mmm, in red). The optimized fit is represented by a solid line, the 95%CI of the fit as all parameters are allowed to vary in their 95%CI, is plotted as a grey ribbon. The 95%CI of the hybridization parameter alpha, as all parameters are fixed to their fitted value while alpha is allowed to vary in its 95%CI, is plotted as dashed lines.

Figure 3. Probability of infection is constant and intensity of pinworm infection is reduced in hybrids. Individual mice tested for detection and quantification of pinworms (a) and mice tested positive (c) are displayed on a map. The predicted probability of infection does not differ in more admixed mice (b) for males (green) and females (orange)(average observed probability

of infection: grey dotted line). Pinworm intensity is reduced at intermediate values of the hybrid index (d), represented as a gradient ranging from 0 (pure Mmd, in blue) to 1 (pure Mmm, in red), for males (green) and females (orange). The optimized fit is represented by a solid line, the 95%CI of the fit as all parameters are allowed to vary in their 95%CI, is plotted as a grey ribbon. The 95%CI of the hybridization parameter alpha, while all parameters are fixed to their fitted value and alpha is allowed to vary in its 95%CI, is plotted as dashed lines.

Figure 4. Body condition does not significantly differ between hybrids and pure mice upon infection. We modelled the residuals from ordinary least squares regression of body weight by body length along the hybrid zone. The fit and residuals for female and male mice is given in (a). The hybrid index is represented as a gradient ranging from 0 (pure Mmd, in blue) to 1 (pure Mmm, in red). "Body condition" residuals along the hybrid index (for *Eimeria* spp. (b) and pinworms (c)) show no difference for infected mice (light green) and non-infected mice (grey). The optimized fit is represented by a solid line, the 95%CI of the fit as all parameters are allowed to vary in their 95%CI, is plotted as a grey ribbon. The 95%CI of the hybridization parameter alpha, as all parameters are fixed to their fitted value while alpha is allowed to vary in its 95%CI, is plotted as dashed lines.


Neuruppin
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Longitude
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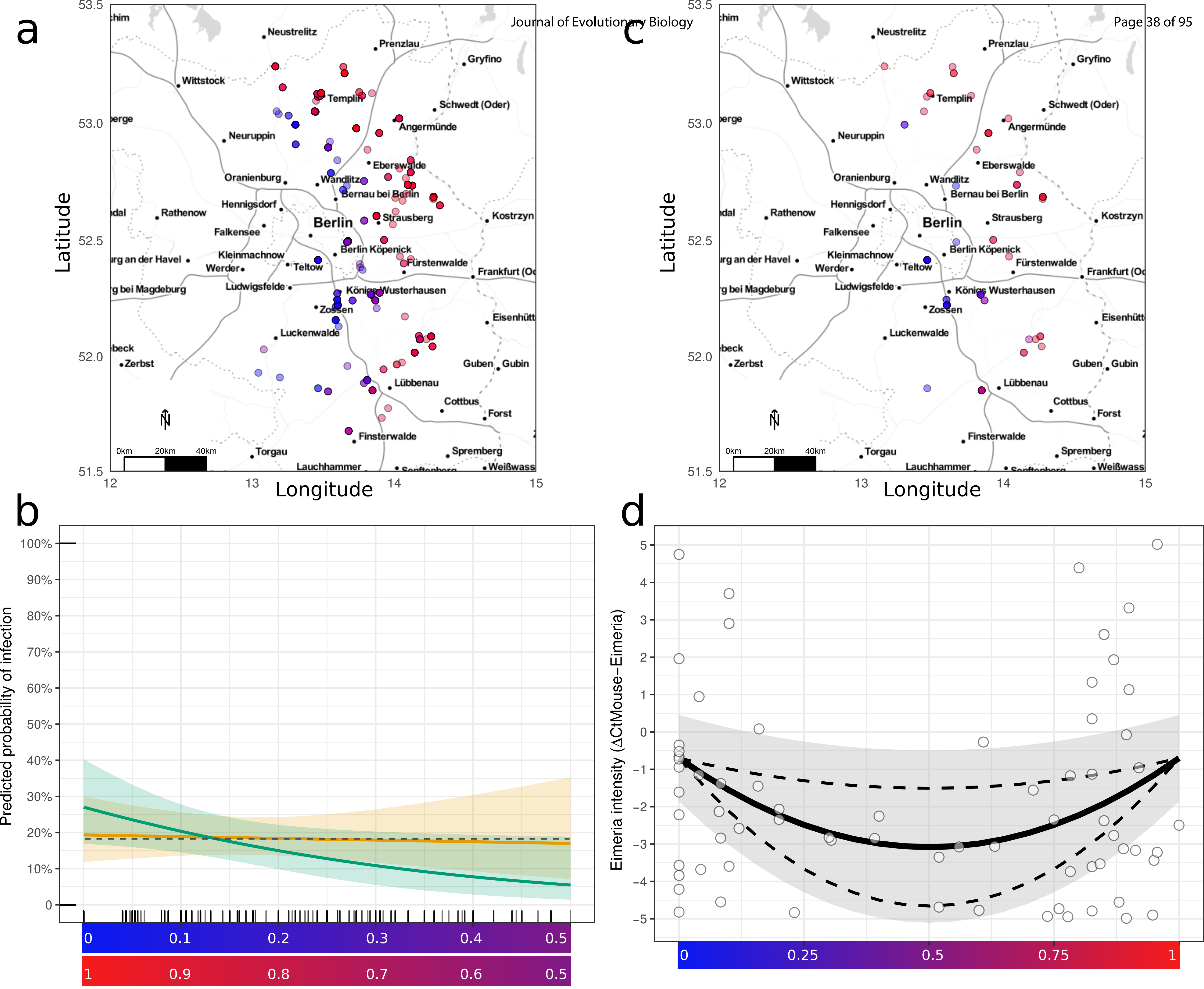
13.5
14.0


a
b
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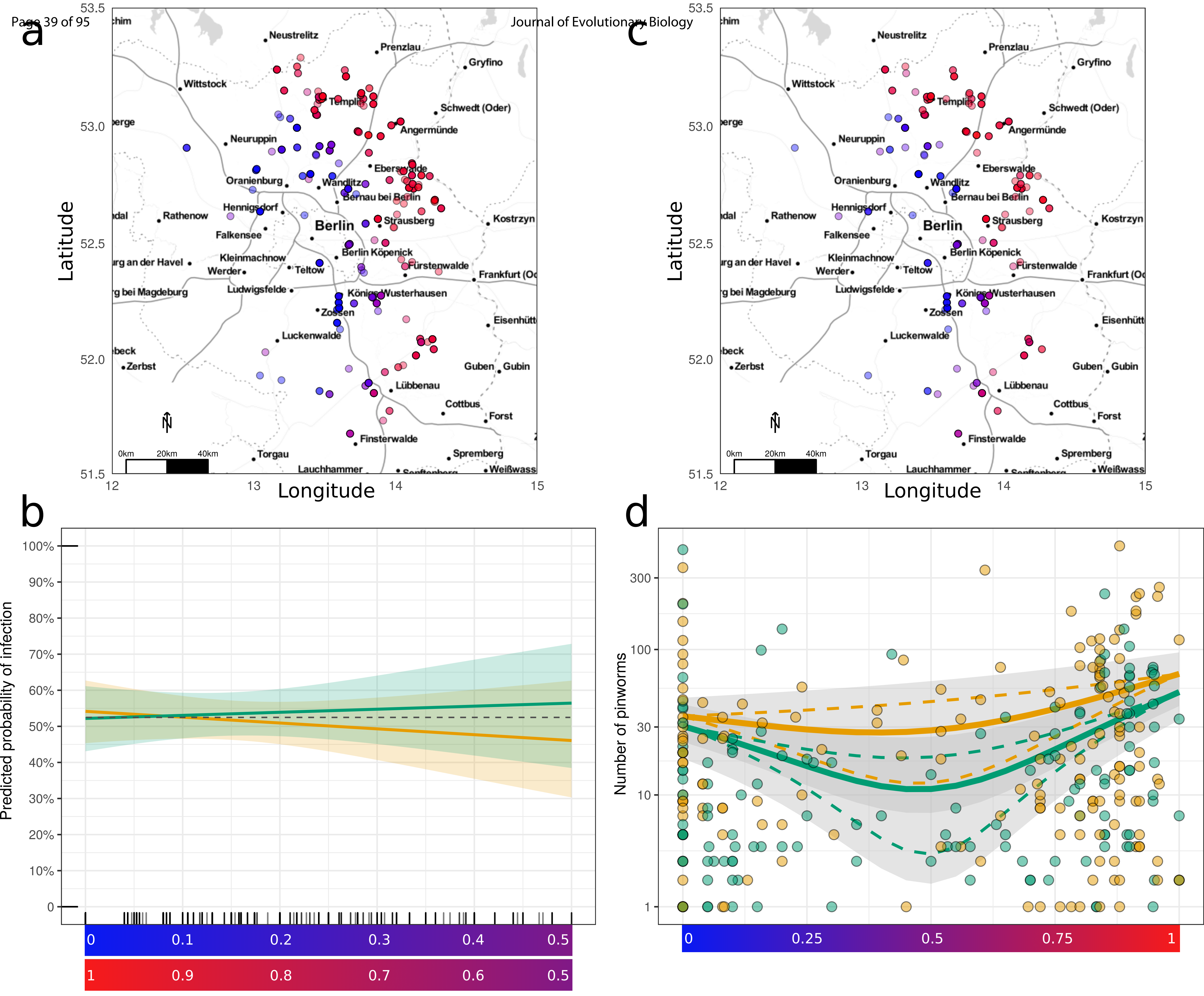
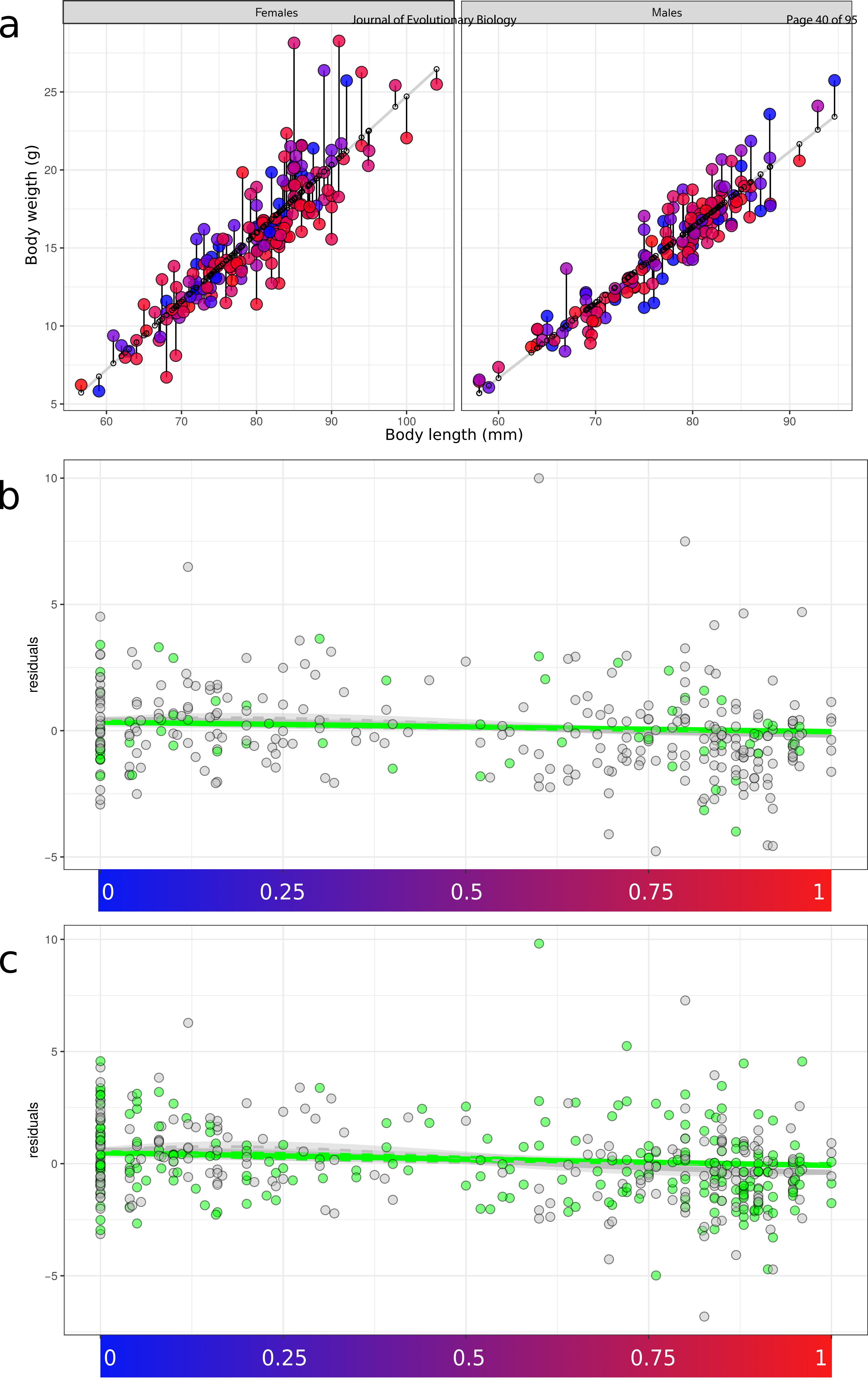
d
Latitude
Longitude
Predicted probability of infection
Eimeria intensity (ΔCtMouse−Eimeria)
Berlin
Neustrelitz
Prenzlau
Gryfino
Wittstock
Templin
Schwedt (Oder)
Angermünde
Neuruppin
Eberswalde
Oranienburg
Wandlitz
Bernau bei Berlin
Hennigsdorf
Rathenow
Strausberg
Kostrzyn
Falkensee
Berlin Köpenick
Kleinmachnow
Fürstenwalde
Werder
Teltow
Frankfurt (Oder)
Ludwigsfelde
Königs Wusterhausen
Zossen
Eisenhüttenstadt
Luckenwalde
Zerbst
Guben
Gubin
Lübbenau
Cottbus
Forst
Finsterwalde
Torgau
Spremberg
Lauchhammer
Senftenberg
Weißwasser
0km
20km
40km
53.5
53.0
52.5
52.0
51.5
12
13
14
15
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0
0.1
0.2
0.3
0.4
0.5
1
0.9
0.8
0.7
0.6
0.25
0.75
5
4
3
2
−1
−2
−3
−4
−5


a
b
c
d
Latitude
Longitude
Predicted probability of infection
Number of pinworms
Berlin
0 0.1 0.2 0.3 0.4 0.5
1 0.9 0.8 0.7 0.6 0.5
0 0.25 0.5 0.75 1


a
Females
Males
Body weigth (g)
Body length (mm)
b
residuals
0
0.25
0.5
0.75
1
c
residuals
0
0.25
0.5
0.75
1

Supplementary table S1

Mouse_ID	Sex	Longitude	Latitude	Year	mtBamH	YNPAR	X332	X347	X65	Tsx	Btk
AA_0047	M	13.68	52.5	2016	d	m	m	m	m	m	m
AA_0048	F	13.68	52.5	2016	d	NA	mm	mm	mm	mm	mm
AA_0049	M	13.68	52.5	2016	d	m	m	m	m	m	m
AA_0050	M	13.68	52.5	2016	d	m	m	m	m	m	m
AA_0051	F	13.93	52.5	2016	d	NA	mm	mm	mm	dd	mm
AA_0052	M	13.93	52.5	2016	d	m	NA	m	d	d	d
AA_0053	F	13.93	52.5	2016	d	NA	mm	mm	dd	dd	mm
AA_0054	F	13.93	52.5	2016	NA	NA	mm	mm	dd	dd	mm
AA_0055	M	13.31	52.91	2016	d	d	d	d	d	d	d
AA_0056	F	13.31	52.91	2016	d	NA	dd	dd	dd	dd	dd
AA_0057	M	13.31	52.91	2016	d	d	d	d	NA	d	d
AA_0058	F	14.12	52.84	2016	NA	NA	mm	mm	mm	dd	mm
AA_0059	M	14.12	52.84	2016	d	m	m	m	m	m	m
AA_0060	F	14.12	52.84	2016	d	NA	mm	mm	mm	dm	mm
AA_0061	M	13.6	52.27	2016	d	d	d	d	d	d	d
AA_0062	F	13.6	52.27	2016	d	NA	dd	dd	dd	dd	dd
AA_0063	M	13.84	52.27	2016	d	m	d	d	d	d	d
AA_0064	F	13.46	52.42	2016	d	NA	dd	dd	dd	dd	dd
AA_0065	M	13.46	52.42	2016	d	d	d	d	d	d	d
AA_0066	F	13.46	52.42	2016	d	NA	dd	dd	dd	dd	dd
AA_0067	M	13.46	52.42	2016	d	d	d	d	d	d	d
AA_0068	F	13.46	52.42	2016	d	NA	dd	dd	dd	dd	dd
AA_0069	M	13.46	52.42	2016	d	d	d	d	d	d	d
AA_0070	F	13.46	52.42	2016	d	NA	dd	dd	dd	dd	dd
AA_0071	F	13.6	52.84	2016	d	NA	dd	dd	dd	dd	dd
AA_0072	F	13.3	52.99	2016	d	NA	dd	dd	dd	dd	dd
AA_0073	F	13.3	52.99	2016	d	NA	dd	dd	dd	dd	dd
AA_0074	F	13.3	52.99	2016	d	NA	dd	dd	dd	dd	dd
AA_0075	F	13.3	52.99	2016	d	NA	dd	dd	dd	dd	dd
AA_0076	M	13.71	52.24	2016	d	m	d	d	d	d	d
AA_0077	F	13.59	52.22	2016	d	NA	dd	dd	dd	dd	dd
AA_0078	F	13.59	52.22	2016	d	NA	dd	dd	dd	dd	dd
AA_0079	M	13.84	52.27	2016	d	m	d	d	d	d	d
AA_0080	F	13.84	52.27	2016	d	NA	dd	dd	dd	dd	dd
AA_0081	M	13.84	52.27	2016	d	m	d	d	d	d	d
AA_0082	F	13.84	52.27	2016	d	NA	dd	dd	dd	dd	dd
AA_0083	F	13.68	52.5	2016	d	NA	mm	mm	NA	mm	mm
AA_0084	M	13.68	52.5	2016	d	NA	NA	NA	NA	m	m
AA_0085	F	13.68	52.5	2016	d	NA	mm	mm	mm	mm	mm
AA_0086	M	13.68	52.5	2016	d	NA	NA	d	NA	d	d
AA_0087	F	13.68	52.5	2016	d	NA	mm	mm	NA	mm	mm
AA_0088	M	13.84	52.27	2016	d	m	d	d	d	d	d
AA_0089	F	13.84	52.27	2016	d	NA	NA	dd	NA	dd	dd
AA_0090	M	13.71	52.24	2016	d	NA	NA	NA	NA	d	NA
AA_0091	F	13.55	52.79	2016	d	NA	NA	NA	NA	dd	dd
AA_0092	M	13.55	52.79	2016	NA	NA	NA	NA	NA	NA	NA
AA_0093	M	13.3	52.99	2016	NA	m	d	NA	NA	NA	d
AA_0094	F	13.3	52.99	2016	m	NA	dd	dd	dd	dd	dd
AA_0095	M	13.3	52.99	2016	d	m	d	d	d	d	d
AA_0096	F	13.04	51.93	2016	NA	NA	NA	NA	NA	NA	NA
AA_0097	M	13.64	52.72	2016	d	NA	d	d	NA	d	d
AA_0098	M	13.64	52.72	2016	d	d	d	d	d	d	d
AA_0099	M	13.08	52.03	2016	d	NA	m	NA	NA	d	d
AA_0100	F	13.46	51.86	2016	d	NA	dd	dd	NA	dd	dd

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AA_0101	M	13.46	51.86	2016	d	d	d	d	d	d	d
AA_0102	M	13.2	51.91	2016	d	d	d	d	d	d	d
AA_0103	F	13.73	52.98	2016	m	NA	mm	mm	NA	dm	mm
AA_0104	M	13.73	52.98	2016	m	m	m	m	NA	m	m
AA_0105	F	13.73	52.98	2016	m	NA	mm	mm	NA	dm	dm
AA_0106	M	13.73	52.98	2016	d	m	m	m	NA	m	d
AA_0107	F	13.73	52.98	2016	m	NA	mm	mm	mm	mm	dm
AA_0108	M	13.73	52.98	2016	m	m	m	m	NA	d	m
AA_0109	M	13.73	52.98	2016	m	m	m	m	NA	d	m
AA_0110	M	13.68	52.5	2016	d	m	m	m	NA	m	m
AA_0111	F	13.9	52.96	2016	d	NA	mm	mm	NA	dd	mm
AA_0112	M	13.9	52.96	2016	d	m	m	m	NA	d	m
AA_0113	M	13.84	52.27	2016	d	m	d	m	NA	d	d
AA_0114	F	13.9	52.96	2016	d	NA	mm	mm	NA	dd	mm
AA_0115	M	13.73	52.98	2016	m	m	m	m	NA	d	m
AA_0116	M	13.73	52.98	2016	d	m	m	m	NA	d	m
AA_0117	F	13.73	52.98	2016	m	NA	mm	mm	mm	mm	mm
AA_0118	F	13.73	52.98	2016	m	NA	mm	mm	mm	dm	dm
AA_0119	F	13.73	52.98	2016	d	NA	mm	mm	mm	dd	mm
AA_0120	F	13.9	52.96	2016	d	NA	mm	mm	NA	dd	mm
AA_0121	F	13.9	52.96	2016	NA	NA	NA	NA	NA	dd	mm
AA_0122	F	13.73	52.98	2016	m	NA	mm	mm	mm	mm	mm
AA_0123	F	13.3	52.99	2016	d	NA	dd	dd	dd	dd	dd
AA_0124	F	13.3	52.99	2016	d	NA	dm	dd	dd	dd	dd
AA_0125	F	13.3	52.99	2016	m	NA	dd	dd	NA	dd	dd
AA_0126	F	13.79	52.75	2016	d	NA	NA	mm	NA	dd	NA
AA_0127	M	13.26	53.03	2016	d	m	d	d	d	d	d
AA_0128	M	13.19	53.04	2016	d	d	d	NA	d	d	d
AA_0129	F	13.26	53.03	2016	d	NA	dd	dd	dd	dd	dd
AA_0130	F	13.59	52.16	2016	d	NA	dd	dd	dd	dd	dd
AA_0131	M	13.59	52.16	2016	d	NA	d	d	NA	d	d
AA_0132	M	13.59	52.16	2016	d	d	d	d	d	d	d
AA_0133	M	13.61	52.13	2016	d	d	d	d	NA	d	d
AA_0134	F	13.59	52.16	2016	d	NA	dd	dd	dd	dd	dd
AA_0135	M	13.59	52.16	2016	d	NA	NA	d	d	d	d
AA_0136	M	13.79	52.75	2016	d	d	d	d	d	d	d
AA_0137	F	13.79	52.75	2016	d	NA	dd	dd	NA	dd	dd
AA_0138	F	14.12	52.42	2016	d	NA	mm	mm	mm	dm	mm
AA_0139	M	14.04	52.43	2016	d	m	m	d	m	d	m
AA_0140	F	13.77	53.12	2016	d	NA	mm	dd	mm	dd	mm
AA_0141	M	13.77	53.12	2016	NA	m	NA	m	d	d	NA
AA_0142	F	13.77	53.12	2016	d	NA	mm	mm	NA	dd	mm
AA_0143	M	13.55	52.79	2016	NA	d	d	d	d	d	d
AA_0144	F	14.08	52.7	2016	d	NA	mm	mm	NA	mm	mm
AA_0145	F	14.06	52.67	2016	m	NA	mm	mm	mm	dm	mm
AA_0146	M	13.81	51.9	2016	d	d	m	d	d	d	d
AA_0147	F	13.79	51.89	2016	d	NA	mm	dd	dd	dd	dm
AA_0148	M	13.81	51.9	2016	d	d	m	d	d	d	d
AA_0149	F	13.79	51.89	2016	d	NA	dm	dd	dd	dd	dm
AA_0150	M	13.81	51.9	2016	d	d	m	d	d	d	d
AA_0151	F	13.81	51.9	2016	d	NA	dm	dd	dd	dd	dd
AA_0152	M	13.81	51.9	2016	d	NA	m	d	d	d	d
AA_0153	F	13.81	51.9	2016	d	NA	mm	dd	dd	dd	dd
AA_0154	M	13.81	51.9	2016	d	d	m	d	d	d	d
AA_0155	F	13.81	51.9	2016	d	NA	dd	dd	dd	dd	dd

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AA_0156	F	13.81	51.9	2016	d	NA	mm	dd	dd	dd	dd
AA_0157	M	13.81	51.9	2016	d	NA	d	d	d	d	d
AA_0158	F	13.81	51.9	2016	d	NA	mm	dd	dd	dd	dd
AA_0159	F	13.81	51.9	2016	d	NA	mm	dd	dd	dd	dd
AA_0160	F	13.81	51.9	2016	d	NA	dd	dd	dd	dd	dd
AA_0161	F	13.53	51.85	2016	m	NA	mm	dd	dd	dd	dm
AA_0162	F	13.53	51.85	2016	d	NA	dd	dd	dd	dd	dd
AA_0163	F	13.53	51.85	2016	m	NA	mm	dd	dd	dd	dm
AA_0164	M	13.85	51.85	2016	d	NA	m	d	d	d	d
AA_0165	F	13.85	51.85	2016	m	NA	mm	dm	dd	dd	dd
AA_0166	M	13.85	51.85	2016		NA		d	d	d	
AA_0167	F	13.85	51.85	2016	m	NA	mm	dm	dd	dd	dd
AA_0168	F	13.85	51.85	2016	d	NA	mm	mm	dd	mm	dd
AA_0169	M	13.85	51.85	2016		NA				d	
AA_0170	F	13.85	51.85	2016	m	NA	mm	dm	dm	mm	mm
AA_0171	M	13.85	51.85	2016	m	NA	m	m	d	m	d
AA_0172	F	13.85	51.85	2016	d	NA	mm	mm	dd	dm	dd
AA_0173	M	14.04	53.02	2016	d	m	m	m	m	d	m
AA_0174	F	13.85	51.85	2016	d	NA	mm	dm	dd	dm	dd
AA_0175	F	13.85	51.85	2016	d	NA	mm	dm	dd		dd
AA_0176	F	13.85	51.85	2016	m	NA	mm	dm	dd	dd	dd
AA_0177	M	13.84	53.13	2016	d	m	m	m	NA	d	m
AA_0178	F	13.75	53.13	2016	d	NA	mm	mm	mm	dd	mm
AA_0179	M	13.75	53.13	2016	d	m	m	m	m	d	m
AA_0180	F	13.21	53.15	2016	d	NA	mm	mm	mm	mm	mm
AA_0181	M	13.21	53.15	2016	d	m	m	m	m	m	m
AA_0182	F	13.17	53.05	2016	d	NA	dd	dd	dd	dd	dd
AA_0183	M	13.21	53.15	2016	d	m	m	m	m	m	m
AA_0184	F	13.21	53.15	2016	d	NA	mm	mm	mm	mm	mm
AA_0185	M	14.04	53.02	2016	d	m	m	m	m	d	m
AA_0186	F	14.04	53.02	2016	NA	NA	mm	mm	mm	dd	mm
AA_0187	M	14.04	53.02	2016	d	m	m	m	m	d	m
AA_0188	F	14.04	53.02	2016	d	NA	dd	mm	mm	dd	mm
AA_0189	M	14.04	53.02	2016	d	m	m	m	m	d	m
AA_0190	F	13.85	51.85	2016	m	NA	mm	dm	dm	mm	mm
AA_0191	M	14.04	53.02	2016	NA	m	NA	d	NA	NA	NA
AA_0192	F	14.13	52.73	2016	d	NA	mm	mm	mm	dm	dm
AA_0193	F	14.13	52.73	2016	d	NA	mm	mm	mm	dm	dm
AA_0194	M	14.13	52.73	2016	d	m	m	m	m	NA	m
AA_0195	F	14.13	52.73	2016	d	NA	mm	mm	mm	dm	dm
AA_0196	M	13.16	53.24	2016	d	m	m	m	m	d	m
AA_0197	F	14.13	52.73	2016	d	NA	mm	mm	mm	dd	mm
AA_0198	M	13.45	53.09	2016	NA	m	m	m	m	m	m
AA_0199	F	13.16	53.24	2016	d	NA	mm	mm	mm	dd	dm
AA_0200	M	13.16	53.24	2016	d	m	m	m	m	d	m
AA_0201	F	13.16	53.24	2016	d	NA	mm	mm	mm	mm	mm
AA_0202	M	13.16	53.24	2016	d	m	m	m	m	m	m
AA_0203	F	13.45	53.05	2016	d	NA	mm	mm	mm	dd	mm
AA_0204	M	13.16	53.24	2016	d	m	m	m	m	d	m
AA_0205	F	13.45	53.05	2016	d	NA	mm	mm	mm	dd	mm
AA_0206	M	13.16	53.24	2016	d	m	m	m	m	d	m
AA_0207	F	14.07	52.4	2016	d	NA	mm	dm	mm	dd	dd
AA_0208	F	13.45	53.05	2016	d	NA	mm	mm	mm	dd	mm
AA_0209	F	14.07	52.4	2016	d	NA	mm	mm	NA	dm	dd
AA_0210	F	14.32	52.65	2016	d	NA	NA	m	NA	NA	NA

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AA_0211	F	14.13	52.73	2016	d	NA	NA	mm	NA	NA	mm
AA_0237	F	13.67	52.73	2017	d	NA	dd	dd	dd	dd	dd
AA_0238	F	13.79	52.59	2017	d	NA	dd	dd	dd	dd	dd
AA_0239	M	13.79	52.59	2017	d	NA	d	d	d	d	d
AA_0240	F	13.79	52.58	2017	d	NA	mm	dm	dm	dm	dm
AA_0241	F	14.01	52.62	2017	d	NA	mm	mm	mm	mm	dm
AA_0242	M	14.04	52.81	2017	d	m	m	m	m	m	m
AA_0243	M	13.81	52.89	2017	d	m	m	m	m	d	m
AA_0244	F	13.6	52.25	2017	NA	NA	dd	mm	dd	dd	dd
AA_0245	M	13.6	52.22	2017	d	d	d	d	d	d	d
AA_0246	F	13.6	52.22	2017	d	NA	mm	mm	dd	dd	dd
AA_0247	M	13.6	52.22	2017	d	NA	d	d	d	d	d
AA_0248	F	13.6	52.22	2017	d	NA	dd	dd	dd	dd	dd
AA_0249	M	13.6	52.22	2017	d	d	d	d	d	d	d
AA_0250	M	13.6	52.22	2017	d	d	d	d	d	d	d
AA_0251	F	13.6	52.22	2017	d	NA	dd	dd	dd	dd	dd
AA_0252	M	13.6	52.22	2017	d	d	d	m	d	d	d
AA_0253	F	13.6	52.22	2017	NA	NA	NA	dd	dd	NA	mm
AA_0254	M	13.6	52.25	2017	d	NA	d	d	d	d	d
AA_0255	M	13.6	52.25	2017	NA	d	d	d	d	d	d
AA_0256	F	13.6	52.22	2017	d	NA	dd	dd	mm	dd	dd
AA_0257	M	13.6	52.22	2017	d	d	d	d	d	d	d
AA_0258	F	13.6	52.27	2017	d	NA	dd	dd	dd	dd	dd
AA_0259	F	13.6	52.22	2017	NA	NA	dd	dd	dd	dd	dd
AA_0260	F	13.6	52.22	2017	NA	NA	dd	dd	dd	NA	dd
AA_0261	M	13.6	52.25	2017	d	NA	d	d	d	d	d
AA_0262	F	13.6	52.25	2017	d	NA	dd	dd	dd	dd	dd
AA_0263	F	13.6	52.25	2017	d	NA	dd	dd	dd	dd	dd
AA_0264	M	13.76	52.4	2017	NA	NA	d	d	m	d	d
AA_0265	M	13.76	52.39	2017	d	m	d	d	d	d	m
AA_0266	F	14.05	52.68	2016	d	NA	mm	mm	NA	mm	mm
AA_0267	F	13.55	52.92	2017	d	NA	dd	dd	dd	dd	dd
AA_0268	M	13.71	52.24	2017	d	m	d	d	d	d	d
AA_0269	M	13.88	52.61	2017	d	NA	NA	NA	NA	NA	NA
AA_0270	F	13.88	52.61	2017	d	NA	NA	NA	NA	NA	NA
AA_0271	F	13.54	52.9	2017	NA	NA	NA	NA	NA	NA	NA
AA_0272	M	13.54	52.9	2017	NA	NA	NA	NA	NA	NA	NA
AA_0273	M	13.54	52.9	2017	d	d	d	d	d	d	d
AA_0274	F	13.88	52.61	2017	NA	NA	NA	NA	NA	NA	NA
AA_0275	F	13.88	52.61	2017	d	NA	NA	NA	NA	NA	NA
AA_0276	M	13.54	52.9	2017	d	m	d	d	d	d	d
AA_0277	M	13.54	52.9	2017	NA	m	NA	NA	NA	NA	NA
AA_0278	F	13.54	52.9	2017	d	NA	NA	NA	NA	NA	NA
AA_0279	M	13.88	52.61	2017	NA	NA	NA	NA	NA	NA	NA
AA_0280	F	13.88	52.61	2017	d	NA	mm	mm	mm	dd	mm
AA_0281	M	13.54	52.9	2017	d	d	NA	NA	NA	NA	NA
AA_0282	M	13.54	52.9	2017	NA	NA	NA	NA	NA	NA	NA
AA_0283	F	13.54	52.9	2017	NA	NA	NA	NA	NA	NA	NA
AA_0284	F	13.54	52.9	2017	NA	NA	dd	mm	dd	NA	dd
AA_0285	M	13.54	52.9	2017	d	d	d	d	d	d	d
AA_0286	F	13.78	52.37	2017	d	NA	dd	dd	dd	dd	dd
AA_0287	M	13.88	52.61	2017	m	m	m	m	m	d	m
AA_0288	M	13.88	52.61	2017	NA	m	NA	m	m	d	NA
AA_0289	M	13.88	52.61	2017	m	m	m	m	m	d	m
AA_0290	F	13.88	52.61	2017	m	NA	mm	mm	mm	dd	mm

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AA_0291	F	13.54	52.9	2017	d	NA	dd	dd	dd	dd	dd
AA_0292	F	13.54	52.9	2017	d	NA	dd	dd	dd	dd	dd
AA_0293	F	13.76	53.14	2017	d	NA	mm	mm	mm	dd	mm
AA_0294	M	14.12	52.79	2017	d	m	m	m	m	m	m
AA_0295	M	14.12	52.79	2017	d	m	m	m	m	m	d
AA_0296	M	14.1	52.74	2017	d	m	m	m	m	m	m
AA_0297	F	14.12	52.79	2017	d	NA	mm	mm	mm	dm	mm
AA_0298	F	14.1	52.74	2017	m	NA	mm	mm	mm	mm	mm
AA_0299	M	14.1	52.74	2017	d	m	m	m	NA	m	m
AA_0300	F	14.12	52.79	2017	d	NA	mm	mm	mm	mm	dm
AA_0301	F	14.1	52.74	2017	m	NA	mm	mm	mm	dm	mm
AA_0302	M	13.68	52.5	2017	d	m	d	d	m	m	m
AA_0303	M	13.87	52.24	2017	d	m	d	d	d	d	d
AA_0304	F	13.68	52.5	2017	d	NA	dd	dd	mm	mm	mm
AA_0304_E1	M	13.68	52.5	2017	d	m		d	m	m	m
AA_0304_E2	M	13.68	52.5	2017	d	m		d	m	m	m
AA_0305	F	13.54	52.9	2017	d	NA	mm	dm	dd	dd	dd
AA_0306	M	13.87	52.24	2017	NA	m	m	d	d	d	d
AA_0307	F	13.87	52.24	2017	d	NA	dd	dd	dd	dd	dd
AA_0308	M	13.87	52.24	2017	d	m	d	d	d	d	d
AA_0309	F	13.87	52.24	2017	d	NA	mm	dm	dd	dd	dd
AA_0310	F	14.1	52.74	2017	m	NA	mm	mm	mm	dm	dm
AA_0311	F	14.1	52.74	2017	m	NA	mm	mm	mm	dd	mm
AA_0312	F	14.1	52.74	2017	m	NA	mm	mm	mm	mm	mm
AA_0313	F	13.68	52.5	2017	d	NA	dd	dd	dd	dd	dd
AA_0314	M	13.87	52.24	2017	d	m	d	m	d	d	d
AA_0315	F	13.68	52.5	2017	d	NA	mm	dm	dm	dm	dm
AA_0316	M	14.12	52.79	2017	NA	m	m	m	m	m	m
AA_0317	M	13.87	52.24	2017	d	m	d	m	d	d	d
AA_0318	F	14.12	52.79	2017	d	NA	mm	mm	mm	dm	mm
AA_0319	F	13.81	51.9	2017	d	NA	dd	dd	dd	dd	dd
AA_0320	M	13.81	51.9	2017	d	m	d	d	d	d	d
AA_0321	M	13.46	53.11	2017	m	m	m	m	NA	d	m
AA_0322	M	13.83	52.27	2017	d	m	d	m	d	d	d
AA_0323	F	13.46	53.11	2017	m	NA	mm	NA	mm	dd	mm
AA_0324	F	13.46	53.11	2017	m	NA	mm	mm	mm	dd	mm
AA_0325	M	13.44	53.05	2017	d	m	m	m	m	d	m
AA_0326	M	13.46	53.12	2017	d	m	m	m	m	d	d
AA_0327	F	13.44	53.05	2017	d	NA	mm	mm	mm	dd	mm
AA_0328	F	13.44	53.05	2017	d	NA	mm	mm	mm	dm	mm
AA_0329	M	14.02	51.97	2017	m	m	m	m	m	m	m
AA_0330	M	13.99	52.57	2017	d	NA	m	m	d	m	m
AA_0331	F	13.48	53.12	2017	m	NA	mm	mm	mm	mm	mm
AA_0332	F	13.48	53.12	2017	m	NA	mm	mm	mm	dm	mm
AA_0333	M	13.48	53.12	2017	m	m	m	m	m	m	m
AA_0334	M	14.01	52.68	2017	m	m	m	m	m	m	NA
AA_0335	F	14.05	51.97	2017	d	NA	mm	mm	mm	mm	mm
AA_0336	M	13.48	53.12	2017	m	m	m	m	d	m	m
AA_0337	F	14.08	52.77	2017	m	NA	mm	mm	mm	dd	mm
AA_0338	M	13.83	52.27	2017	d	m	m	d	d	d	d
AA_0339	M	13.46	53.12	2017	m	m	NA	m	NA	d	m
AA_0340	F	13.46	53.12	2017	d	NA	mm	mm	NA	mm	mm
AA_0341	F	13.49	53.13	2017	m	NA	mm	mm	mm	dd	mm
AA_0342	F	13.46	53.12	2017	d	NA	mm	mm	mm	dd	mm
AA_0343	F	14.02	51.97	2017	m	NA	mm	dd	mm	mm	mm

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AA_0344	F	13.44	53.05	2017	d	NA	mm	mm	mm	dd	mm
AA_0345	M	13.44	53.05	2017	d	m	m	m	m	d	m
AA_0346	F	13.44	53.05	2017	d	NA	NA	mm	mm	dd	mm
AA_0347	M	13.44	53.05	2017	d	NA	m	m	m	d	m
AA_0348	M	13.44	53.05	2017	d	m	m	m	m	m	m
AA_0349	F	13.44	53.05	2017	d	NA	mm	mm	mm	dd	mm
AA_0350	M	13.44	53.05	2017	d	m	m	m	m	d	m
AA_0351	F	13.44	53.05	2017	d	NA	mm	mm	mm	dd	mm
AA_0352	M	13.44	53.05	2017	d	m	m	m	m	d	m
AA_0353	F	13.44	53.05	2017	d	NA	mm	mm	mm	dm	mm
AA_0354	F	13.44	53.05	2017	d	NA	mm	mm	mm	dm	mm
AA_0355	F	13.44	53.05	2017	d	NA	mm	mm	mm	dm	mm
AA_0356	F	13.46	53.12	2017	d	NA	dm	dd	dd	dd	dd
AA_0357	F	13.44	53.05	2017	d	NA	mm	mm	mm	dd	mm
AA_0358	F	13.44	53.05	2017	d	NA	mm	mm	mm	dd	mm
AA_0359	M	13.49	53.13	2017	m	m	m	m	m	d	m
AA_0360	F	13.44	53.05	2017	d	NA	mm	mm	NA	dd	mm
AA_0361	M	13.49	53.13	2017	m	NA	m	m	NA	d	m
AA_0362	M	14.14	52.02	2017	d	m	m	m	m	m	m
AA_0363	M	13.9	52.28	2017	d	m	m	d	d	d	d
AA_0364	F	13.9	52.28	2017	d	m	dd	dd	dd	dm	dd
AA_0365	M	13.96	52.77	2017	d	m	m	m	m	d	m
AA_0366	M	13.49	53.13	2017	m	m	m	m	NA	d	m
AA_0367	F	13.96	52.77	2017	d	NA	mm	mm	mm	dm	mm
AA_0368	F	13.49	53.13	2017	m	NA	mm	mm	mm	dd	mm
AA_0369	M	13.49	53.13	2017	m	m	m	m	m	d	m
AA_0370	F	13.88	52.21	2017	d	NA	mm	dd	dd	dd	dd
AA_0371	F	13.96	52.77	2017	d	NA	mm	mm	mm	dd	mm
AA_0372	F	13.49	53.13	2017	NA	NA	NA	NA	NA	NA	NA
AA_0373	F	13.9	52.28	2017	d	NA	mm	dd	dd	dd	dd
AA_0374	M	14.18	52.07	2017	m	m	m	d	d	d	d
AA_0375	M	14.18	52.07	2017	m	m	m	NA	d	NA	NA
AA_0376	F	13.49	53.13	2017	m	NA	mm	mm	NA	dd	mm
AA_0377	F	13.9	52.28	2017	d	NA	mm	dd	dd	dm	dd
AA_0378	M	13.9	52.28	2017	d	NA	m	d	NA	d	d
AA_0379	M	13.9	52.28	2017	d	m	m	d	m	d	d
AA_0380	F	13.49	53.13	2017	m	NA	mm	mm	mm	dd	mm
AA_0381	M	13.9	52.28	2017	d	m	m	d	m	d	d
AA_0382	F	13.9	52.28	2017	d	NA	mm	dd	mm	dd	dd
AA_0383	M	13.9	52.28	2017	d	m	m	d	NA	d	d
AA_0384	F	13.9	52.28	2017	d	NA	mm	dd	dd	dd	dd
AA_0385	M	13.9	52.28	2017	d	m	m	d	d	d	d
AA_0386	M	13.9	52.28	2017	d	m	m	d	m	d	d
AA_0387	F	13.9	52.28	2017	d	NA	mm	dd	mm	dd	dd
AA_0388	M	14.18	52.07	2017	m	m	m	d	d	d	d
AA_0389	M	14.14	52.02	2017	d	m	m	m	m	m	m
AA_0390	M	13.9	52.28	2017	d	m	m	d	d	d	d
AA_0391	M	14.18	52.07	2017	m	NA	m	d	NA	m	m
AA_0392	F	14.14	52.02	2017	d	NA	mm	mm	NA	dm	mm
AA_0393	F	14.14	52.02	2017	d	NA	mm	mm	mm	mm	mm
AA_0394	F	14.18	52.07	2017	m	NA	mm	dm	dd	dm	mm
AA_0395	F	14.14	52.02	2017	d	NA	mm	mm	NA	mm	mm
AA_0396	F	14.14	52.02	2017	d	NA	mm	NA	dd	mm	mm
AA_0397	M	14.14	52.02	2017	d	m	m	m	m	m	m
AA_0398	F	13.49	53.13	2017	m	NA	mm	mm	mm	dd	mm

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AA_0399	F	14.14	52.02	2017	d	NA	mm	mm	mm	mm	mm
AA_0400	F	14.17	52.09	2017	m	NA	mm	mm	mm	dm	dm
AA_0401	F	14.18	52.07	2017	m	NA	mm	mm	mm	mm	mm
AA_0402	F	14.18	52.07	2017	m	NA	mm	mm	mm	mm	mm
AA_0403	M	14.17	52.09	2017	m	m	m	m	m	d	m
AA_0404	F	14.17	52.09	2017	m	NA	mm	mm	mm	dm	dm
AA_0405	M	14.18	52.07	2017	m	m	m	m	m	m	m
AA_0406	F	13.49	53.13	2017	m	NA	mm	mm	mm	dd	mm
AA_0407	M	14.14	52.02	2017	d	NA	m	m	m	m	m
AA_0408	F	14.14	52.02	2017	d	NA	mm	mm	mm	mm	mm
AA_0409	F	14.18	52.07	2017	m	NA	mm	dm	mm	mm	mm
AA_0410	F	14.18	52.07	2017	m	NA	mm	dm	dd	dm	dm
AA_0413	F	14.18	52.07	2017	m	NA	mm	dm	dm	dm	dm
AA_0414	F	13.9	52.28	2017	d	NA	mm	dd	dd	dd	dd
AA_0415	F	14.18	52.07	2017	m	NA	mm	dm	dd	dm	mm
AA_0416	M	14.17	52.09	2017	d	m	m	m	m	m	m
AA_0417	M	14.28	52.69	2017	d	NA	m	m	m	m	m
AA_0418	M	14.28	52.69	2017	d	m	m	m	m	d	m
AA_0419	F	14.28	52.69	2017	d	NA	mm	mm	mm	dd	mm
AA_0421	M	13.67	52.49	2017	d	NA	d	d	d	d	d
AA_0422	M	14.32	52.65	2017	d	m	m	m	m	m	m
AA_0423	M	14.32	52.65	2017	d	m	m	m	m	m	m
AA_0424	F	14.28	52.69	2017	d	NA	mm	mm	mm	mm	mm
AA_0425	F	14.28	52.69	2017	d	NA	mm	mm	mm	dm	mm
AA_0426	M	14.32	52.65	2017	d	m	m	m	m	d	m
AA_0427	M	14.28	52.69	2017	d	m	m	m	m	NA	m
AA_0428	F	14.28	52.69	2017	d	NA	mm	mm	mm	NA	mm
AA_0429	M	14.28	52.69	2017	NA	m	m	m	m	NA	m
AA_0430	M	14.28	52.69	2017	d	m	m	m	m	NA	m
AA_0431	M	14.28	52.68	2017	d	m	m	m	m	NA	m
AA_0432	F	13.67	52.49	2017	d	NA	dd	dd	dd	NA	dd
AA_0433	F	14.27	52.68	2017	d	NA	mm	mm	mm	NA	mm
AA_0434	M	13.64	53.24	2017	d	m	m	m	d	NA	m
AA_0435	M	13.64	53.24	2017	d	m	m	m	m	NA	m
AA_0436	F	14.26	52.09	2017	d	NA	mm	mm	mm	NA	mm
AA_0437	M	13.67	52.49	2017	d	m	d	d	d	NA	d
AA_0438	M	13.65	53.21	2017	d	m	m	m	m	NA	m
AA_0439	M	14.08	52.17	2017	d	m	m	m	m	NA	d
AA_0440	F	14.26	52.09	2017	d	NA	mm	mm	mm	NA	mm
AA_0441	F	14.26	52.09	2017	d	NA	mm	mm	mm	NA	mm
AA_0442	M	14.27	52.04	2017	d	m	m	m	m	NA	m
AA_0443	M	14.26	52.09	2017	d	m	m	m	m	NA	m
AA_0444	F	14.27	52.04	2017	d	NA	mm	mm	dd	NA	mm
AA_0445	F	14.23	52.08	2017	m	NA	mm	mm	mm	NA	mm
AA_0446	M	14.28	52.69	2017	d	m	m	m	m	NA	m
AA_0447	F	14.27	52.68	2017	m	NA	mm	mm	mm	NA	mm
AA_0448	F	13.67	52.49	2017	d	NA	dd	dd	dd	NA	dd
AA_0449	M	13.65	53.21	2017	d	m	m	m	m	NA	m
AA_0450	F	13.65	53.21	2017	d	NA	mm	mm	mm	NA	mm
AA_0451	F	13.65	53.21	2017	d	NA	mm	mm	mm	NA	mm
AA_0452	F	13.65	53.21	2017	d	NA	mm	mm	mm	NA	mm
AA_0453	M	14.26	52.09	2017	d	m	m	m	m	NA	m
AA_0454	F	14.26	52.09	2017	d	NA	mm	mm	mm	NA	mm
AA_0455	F	14.26	52.09	2017	d	NA	mm	mm	mm	NA	mm
AA_0456	M	13.65	53.21	2017	m	NA	m	m	m	NA	m

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AA_0457	F	14.27	52.04	2017	d	NA	mm	mm	dd	NA	mm
AA_0458	F	14.27	52.04	2017	d	NA	dd	mm	mm	NA	mm
AA_0459	F	14.26	52.09	2017	d	NA	dd	mm	mm	NA	mm
AA_0460	F	13.67	52.49	2017	NA	NA	NA	dd	dd	NA	NA
AA_0461	M	13.67	52.49	2017	NA	NA	NA	d	d	NA	m
AA_0462	F	13.67	52.49	2017	NA	NA	mm	dd	dd	NA	NA
AA_0463	F	14.26	52.09	2017	NA	NA	NA	mm	mm	NA	NA
AA_0465	M	13.3	52.99	2017	NA	NA	NA	NA	NA	NA	NA
AA_0466	F	13.3	52.99	2017	NA	NA	NA	NA	NA	NA	NA
AA_0467	F	13.3	52.99	2016	NA	NA	NA	NA	NA	NA	NA
AA_0468	F	13.67	52.49	2017	d	NA	NA	NA	NA	NA	NA
AA_0469	F	13.93	51.94	2017	d	NA	mm	mm	dd	NA	mm
AA_0470	F	13.93	51.94	2017	d	NA	mm	mm	dd	NA	mm
AA_0471	M	13.67	51.96	2017	m	m	d	d	d	NA	d
AA_0516	F	13.96	51.78	2017	d		mm	dm	mm		mm
AA_0517	M	13.96	51.78	2017	d	m	m	m	d		m
AA_0518	M	13.91	51.73	2017	d		m	m	d		m
AA_0519	M	13.68	51.68	2017	d	m	d	d	d		d
AA_0520	F	13.68	51.68	2017			dd	mm	dd		dd
AA_0521	F	13.68	51.68	2017	d		dd	dm	dd		dd
AA_0522	F	13.68	51.68	2017			dd	dd	dd		dd
AA_0523	M	13.68	51.68	2017	d	m	d	m	d		d
SK_2806	M	13.4	52.8	2014	d	d	d	d	d	d	d
SK_2807	F	13.4	52.8	2014	d	NA	dd	dd	dd	dd	dd
SK_2808	F	13.4	52.8	2014	d	NA	dd	dd	dd	dd	dd
SK_2809	M	13.4	52.8	2014	d	d	d	d	d	d	d
SK_2810	M	13.4	52.8	2014	d	d	d	d	d	d	d
SK_2811	F	13.4	52.8	2014	d	NA	dd	dd	dd	dd	dd
SK_2812	F	13.4	52.8	2014	d	NA	dd	dd	dd	dd	dd
SK_2813	M	13.46	52.92	2014	d	d	d	d	d	d	d
SK_2814	M	13.46	52.92	2014	d	d	d	d	d	d	d
SK_2815	F	13.46	52.92	2014	d	NA	dd	dd	dd	dd	dd
SK_2816	F	13.46	52.92	2014	d	NA	dd	dd	dd	dd	dd
SK_2817	M	12.53	52.91	2014	d	d	d	d	d	d	d
SK_2818	M	12.53	52.91	2014	d	d	d	d	d	d	d
SK_2819	F	12.53	52.91	2014	d	NA	dd	dd	dd	dd	dd
SK_2820	F	12.84	52.62	2014	d	NA	dd	dd	dd	dd	dd
SK_2821	M	13.04	52.64	2014	d	d	d	d	d	d	d
SK_2822	M	13.04	52.64	2014	d	d	d	d	d	d	d
SK_2823	F	13.04	52.64	2014	d	NA	dd	dd	dd	dd	dd
SK_2824	F	13.04	52.64	2014	d	NA	dd	dd	dd	dd	dd
SK_2825	M	13.04	52.64	2014	d	d	d	d	d	d	d
SK_2826	M	12.99	52.73	2014	d	d	d	d	d	d	d
SK_2827	M	13.67	52.73	2014	d	d	d	m	d	d	d
SK_2828	M	13.72	52.71	2014	d	d	d	d	d	d	d
SK_2829	F	13.67	52.73	2014	d	NA	dd	dm	dd	dd	dd
SK_2830	M	13.67	52.73	2014	d	d	d	m	d	d	d
SK_2831	M	13.67	52.73	2014	d	d	d	d	d	d	d
SK_2832	F	14.12	52.75	2014	d	NA	mm	mm	mm	dm	dm
SK_2833	F	14.12	52.75	2014	d	NA	mm	mm	mm	mm	dd
SK_2834	M	14.12	52.75	2014	d	m	m	m	m	d	m
SK_2835	M	13.44	52.88	2014	m	d	d	d	d	d	d
SK_2836	M	13.02	52.81	2014	d	d	d	d	d	d	d
SK_2837	F	13.02	52.81	2014	d	NA	dd	dd	dd	dd	dd
SK_2838	F	13.02	52.81	2014	d	NA	dd	dd	dd	dd	dd

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SK_2839	M	13.84	53.09	2014	d	m	m	m	m	d	m
SK_2840	M	13.84	53.09	2014	d	m	m	m	m	d	m
SK_2841	F	13.84	53.09	2014	d	NA	mm	mm	mm	dd	mm
SK_2842	F	13.84	53.09	2014	d	NA	mm	mm	mm	dd	mm
SK_2843	M	13.84	53.09	2014	d	m	m	m	m	d	m
SK_2844	M	13.67	52.73	2014	d	d	d	m	d	d	d
SK_2845	F	14.18	52.79	2014	m	NA	mm	mm	dm	dm	mm
SK_2846	F	14.18	52.79	2014	d	NA	mm	mm	mm	mm	mm
SK_2847	M	13.67	52.73	2014	d	d	d	d	d	d	d
SK_2848	M	13.67	52.73	2014	d	d	d	m	d	d	d
SK_2849	F	14.18	52.79	2014	d	NA	mm	mm	mm	mm	mm
SK_2850	F	14.24	52.79	2014	d	NA	mm	mm	mm	dm	mm
SK_2890	F	12.53	52.91	2014	d	NA	dd	dd	dd	dd	dd
SK_2891	M	13.73	52.98	2014		NA	d/m				
SK_2892	F	13.67	52.73	2014	d	NA	dd	dd	dd	dd	dd
SK_2893	M	13.67	52.73	2014	d	NA	d	d	d	d	d
SK_2894	F	14.18	52.79	2014	m	NA	mm	mm	mm	mm	mm
SK_2895	F	14.24	52.79	2014	d	NA	mm	mm	mm	mm	mm
SK_2896	F	13.35	52.79	2014	d	NA	dd	dd	dd	dd	dd
SK_2897	F	14.12	52.84	2014	d	NA	mm	dm		dd	mm
SK_2898	F	14.12	52.84	2014	d	NA	mm	mm	mm	dd	mm
SK_2899	M	14.12	52.84	2014	d	m	m	m	m	d	m
SK_2900	F	13.81	52.96	2014	m	NA	mm	mm	mm	mm	mm
SK_2905	M	14.18	52.79	2014	d	m	m	m	m	m	m
SK_2906	F	14.24	52.79	2014	d	NA	mm	mm	mm	dm	mm
SK_2907	F	14.24	52.79	2014	d	NA	mm	mm	mm	dm	mm
SK_2908	F	13.64	52.72	2014	d	NA	dd	mm	dd	dd	dd
SK_2909	F	13.82	53.16	2014	m	NA	mm	mm	mm	dd	mm
SK_2910	F	13.82	53.16	2014	m	NA	mm	mm	mm	dd	mm
SK_2911	F	13.73	52.98	2014	d	NA	mm	mm	mm	dd	mm
SK_2912	F	13.73	52.98	2014	m	NA	mm	mm	mm	dd	mm
SK_2913	M	14.12	52.84	2014	d	m	m	m	m	d	m
SK_2914	M	14.12	52.84	2014	d	m	m	m	m	d	m
SK_2915	F	14.12	52.84	2014	d	NA	mm	mm	mm	mm	mm
SK_2916	F	14.12	52.84	2014	d	NA	mm	mm	mm	dm	mm
SK_2917	M	13.2	52.9	2014	d	d	d	d	d	d	d
SK_2918	M	13.2	52.9	2014	d	d	d	d	d	d	d
SK_2919	F	13.2	52.9	2014	d	NA	dd	dd	dd	dd	dd
SK_2920	F	13.2	52.9	2014	d	NA	dd	dd	dd	dd	dd
SK_2921	M	13.2	52.9	2014	d	d	d	d	d	d	d
SK_2922	M	13.76	53.13	2014	d	m	m	m	m	d	m
SK_2923	F	13.35	52.79	2014	d	NA	dd	dd	dd	dd	dd
SK_2924	M	13.76	53.1	2014	d	m	m	m	m	d	m
SK_2925	F	13.36	52.62	2014	d	NA	dd	dd	dd	dd	dd
SK_2926	F	13.39	52.78	2014	d	NA	dm	dm	dm	dm	dm
SK_2927	M	13.84	53.13	2014	m	m	m	m	m	d	m
SK_2928	F	13.84	53.13	2014	m	NA	mm	mm	mm	dd	mm
SK_2929	F	13.84	53.13	2014	m	NA	mm	mm	mm	dd	mm
SK_2930	M	13.81	52.96	2014	m	m	m	m	m	m	m
SK_2931	M	13.81	52.96	2014	m	m	m	m	m	d	m
SK_2932	F	13.84	53.13	2014	m	NA	mm	mm	mm	dd	mm
SK_2933	F	13.81	52.96	2014	m	NA	mm	mm	mm	mm	mm
SK_2934	M	13.81	52.96	2014	m	m	m	m	m	d	m
SK_2935	F	13.78	53.09	2014	d	NA	mm	mm	mm	dd	mm
SK_3091	M	14.07	52.77	2015	d	m	m	m	m	m	m

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SK_3092	F	14.12	52.79	2015	d	NA	mm	mm	mm	dm	mm
SK_3093	M	13.74	52.98	2015	d	m	m	m	m	d	m
SK_3094	F	13.74	52.98	2015	d	NA	mm	mm	mm	dd	mm
SK_3095	M	14.16	52.75	2015	d	m	m	m	m	m	d
SK_3096	M	14.08	52.77	2015	d	m	m	m	m	m	m
SK_3097	F	13.44	52.88	2015	d	NA	dd	dd	dd	dd	dd
SK_3098	M	14.32	52.65	2015	d	m	m	m	m	m	m
SK_3099	F	13.44	52.88	2015	d	NA	dd	dd	dd	dd	dd
SK_3100	F	13.6	53.12	2015	m	NA	mm	mm	mm	dd	mm
SK_3101	F	13.6	53.12	2015	m	NA	mm	mm	mm	dm	mm
SK_3102	F	13.6	53.12	2015	m	NA	mm	mm	mm	dm	mm
SK_3103	M	13.45	53.05	2015	d	m	m	m	m	d	m
SK_3104	M	14.12	52.75	2015	d	m	m	m	m	m	m
SK_3105	F	13.45	53.15	2015	m	NA	mm	mm	mm	dd	mm
SK_3106	F	13.45	53.05	2015	d	NA	mm	mm	mm	dd	mm
SK_3107	M	13.4	52.8	2015	d	d	d	d	d	d	d
SK_3108	F	14.12	52.75	2015	d	NA	mm	mm	mm	dd	mm
SK_3109	F	14.06	52.81	2015	d	NA	mm	mm	mm	mm	mm
SK_3110	M	13.88	52.61	2015	m	m	m	m	m	d	m
SK_3111	M	13.88	52.61	2015	m	m	m	m	m	d	m
SK_3112	F	13.88	52.61	2015	m	NA	mm	mm	mm	dd	mm
SK_3113	F	13.88	52.61	2015	m	NA	mm	mm	mm	dd	mm
SK_3114	M	13.88	52.61	2015	m	m	m	m	m	d	m
SK_3115	M	13.88	52.61	2015	m	m	m	m	m	d	m
SK_3116	F	13.88	52.61	2015	m	NA	mm	mm	mm	dd	mm
SK_3117	F	13.88	52.61	2015	m	NA	mm	mm	mm	dd	mm
SK_3118	F	13.88	52.61	2015	m	NA	mm	mm	mm	dd	mm
SK_3119	F	13.88	52.61	2015	m	NA	mm	mm	mm	dd	mm
SK_3120	F	14.12	52.84	2015	d	NA	mm	mm	mm	mm	mm
SK_3121	M	13.88	52.61	2015	m	m	m	m	m	d	m
SK_3122	M	13.67	52.73	2015	d	d	d	d	d	d	d
SK_3123	M	13.67	52.73	2015	d	d	d	d	d	d	d
SK_3124	F	13.67	52.73	2015	d	NA	dd	dm	dd	dd	dd
SK_3125	F	13.67	52.73	2015	d	NA	dd	dd	dd	dd	dd
SK_3126	M	13.67	52.73	2015	d	d	d	d	d	d	d
SK_3127	M	13.67	52.73	2015	d	d	d	d	d	d	d
SK_3128	F	13.67	52.73	2015	d	NA	dd	dd	dd	dd	dd
SK_3129	F	13.67	52.73	2015	d	NA	dd	dm	dd	dd	dd
SK_3130	M	13.67	52.73	2015	d	d	d	m	d	d	d
SK_3131	M	13.67	52.73	2015	d	d	d	d	d	d	d
SK_3132	F	13.67	52.73	2015	d	NA	dd	dd	dd	dd	dd
SK_3133	M	13.67	52.73	2015	d	d	d	d	d	d	d
SK_3134	M	13.85	52.51	2015	d	m	m	m	d	d	d
SK_3135	M	14.06	52.81	2015	d	m	m	m	m	m	m
SK_3136	F	14.3	52.38	2015	d	NA	mm	mm	mm	mm	mm
SK_3137	F	14.06	52.81	2015	d	NA	mm	mm	mm	mm	mm
SK_3138	M	13.76	53.14	2015	d	m	m	m	NA	d	m
SK_3139	M	13.76	53.14	2015	d	m	m	m	m	d	m
SK_3140	F	13.76	53.14	2015	d	NA	mm	mm	mm	dd	mm
SK_3141	F	13.43	53.07	2015	d	NA	mm	mm	mm	dd	mm
SK_3142	M	13.43	53.07	2015	d	m	m	m	m	d	m
SK_3143	M	13.76	53.14	2015	d	m	m	m	m	d	m
SK_3144	F	13.43	53.07	2015	d	NA	mm	mm	mm	dd	mm
SK_3145	F	13.43	53.07	2015	d	NA	NA	mm	NA	dm	mm
SK_3146	M	14.16	52.74	2015	d	m	m	m	m	m	m

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SK_3147	M	13.76	53.14	2015	d	m	m	m	m	d	m
SK_3148	F	13.65	53.21	2015	d	NA	mm	mm	mm	dd	mm
SK_3149	F	13.65	53.21	2015	d	NA	mm	mm	mm	dd	mm
SK_3150	F	13.4	52.8	2015	d	NA	dd	dd	dd	dd	dd
SK_3151	M	13.46	52.92	2015	d	d	d	d	d	d	d
SK_3152	F	13.2	52.9	2015	d	NA	dd	dd	dd	dd	dd
SK_3153	F	13.68	52.5	2015	d	NA	dd	dd	dd	dd	dd
SK_3153-1	F	13.68	52.5	2015	d	NA	d/d	d/d	d/d	d/d	d/d
SK_3153-2	F	13.68	52.5	2015	d	NA	d/d	d/d	d/d	d/d	d/d
SK_3153-3	F	13.68	52.5	2015	d	NA	d/d	d/d	d/d	d/d	d/d
SK_3153-4	F	13.68	52.5	2015	d	NA	d/d	d/d	d/d	d/d	d/d
SK_3153-5	M	13.68	52.5	2015	NA	NA	d	d	d	d	d
SK_3153-E1	F	13.68	52.5	2015	d		dd	dd	dd	dd	dd
SK_3153-E2	F	13.68	52.5	2015	d		dd	dd	dd	dd	dd
SK_3153-E3	F	13.68	52.5	2015	d		dd	dd	dd	dd	dd
SK_3153-E4	F	13.68	52.5	2015	d		dd	dd	dd	dd	dd
SK_3153-E5	M	13.68	52.5	2015	d	d	d	d	d	d	d
SK_3154	M	13.55	52.92	2015	d	d	d	d	d	d	d
SK_3155	M	13.55	52.92	2015	d	d	d	d	d	d	d
SK_3156	F	13.55	52.92	2015	d	NA	dd	dd	dd	dd	dd
SK_3157	F	13.55	52.92	2015	d	NA	NA	dd	dd	dd	dd
SK_3158	M	13.55	52.92	2015	d	d	d	d	d	d	d
SK_3159	M	13.99	52.57	2015	d	m	m	m	m	m	m
SK_3160	F	14.16	52.74	2015	d	NA	mm	mm	mm	mm	dm
SK_3161	F	14.16	52.74	2015	d	NA	mm	mm	mm	mm	mm
SK_3162	F	13.43	53.07	2015	d	NA	mm	mm	mm	dm	mm
SK_3163	M	13.88	52.61	2015	m	m	m	m	m	d	m
SK_3164	M	13.88	52.61	2015	m	m	m	m	m	d	m
SK_3165	F	13.88	52.61	2015	m	NA	mm	mm	mm	dd	mm
SK_3166	F	13.88	52.61	2015	m	NA	mm	mm	NA	dd	mm
SK_3167	M	13.88	52.61	2015	m	m	m	m	m	d	m
SK_3168	F	13.67	52.73	2015	d	NA	dd	dd	dd	dd	dd
SK_3169	F	13.67	52.73	2015	d	NA	dd	dd	dd	dd	dd
SK_3170	F	13.67	52.73	2015	d	NA	dd	mm	dd	dd	dd
SK_3171	F	13.46	52.92	2015	d	NA	dd	dm	dd	dd	dd
SK_3172	F	13.2	52.9	2015	d	NA	dd	dd	dd	dd	dd
SK_3173	M	13.38	53.15	2015	d	m	NA	m	NA	d	NA
SK_3175	F	13.2	52.9	2015	d	NA	dd	dd	dd	dd	dd
SK_3176	F	14.18	52.64	2015	d	NA	mm	mm	mm	mm	mm
SK_3177	F	14.18	52.64	2015	d	NA	mm	mm	mm	mm	mm
SK_3178	M	13.84	53.13	2015	m	m	m	m	m	d	m
SK_3179	M	13.97	53	2015	d	m	m	m	d	d	m
SK_3180	F	13.97	53	2015	d	NA	mm	mm	mm	dd	mm
SK_3181	M	14.04	53.02	2015	d	m	m	m	m	d	m
SK_3182	M	13.97	53	2015	d	m	m	m	m	d	m
SK_3183	M	13.81	52.89	2015	d	m	m	m	m	d	m
SK_3184	M	13.13	52.89	2015	d	d	d	d	d	d	d
SK_3185	M	13.81	52.89	2015	d	m	m	m	m	d	m
SK_3186	M	13.97	53	2015	d	m	m	m	m	d	m
SK_3187	M	13.76	52.4	2015	d	d	m	d	d	d	d
SK_3188	F	13.31	53.25	2015	d	NA	mm	mm	mm	dd	mm
SK_3189	M	13.33	53.29	2015	d	m	m	m	m	d	m
SK_3190	M	13.3	53.25	2015	d	m	m	m	m	d	m
SK_3191	M	13.31	53.22	2015	d	m	m	m	m	d	m
SK_3192	F	13.31	53.22	2015	m	NA	mm	mm	mm	dd	mm

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SK_3193	F	13.16	53.24	2015	d	NA	mm	mm	mm	dd	dm
SK_3194	M	14.06	52.81	2015	d	m	m	m	m	m	m
SK_3195	M	13.04	52.64	2015	d	d	d	d	d	d	d
SK_3196	F	13.02	52.82	2015	d	NA	dd	dd	dd	dd	dd
SK_3197	M	13.02	52.82	2015	d	d	d	d	d	d	d
SK_3198	F	13.02	52.82	2015	d	NA	dd	dd	dd	dd	dd
SK_3199	M	13.6	52.22	2015	d	d	d	d	d	d	d
SK_3200	M	13.6	52.22	2015	d	d	d	d	d	d	d
SK_3201	F	13.6	52.22	2015	d	NA	dd	dd	dd	dd	dd
SK_3202	F	13.6	52.22	2015	d	NA	dd	dd	dd	dd	dd
SK_3203	F	13.6	52.22	2015	d	NA	dd	dd	dd	dd	dd
SK_3204	M	13.6	52.22	2015	d	d	d	d	d	d	d
SK_3205	F	13.6	52.22	2015	d	NA	dd	dd	dd	dd	dd
SK_3206	F	13.6	52.22	2015	d	NA	dd	dd	dd	dd	dd
SK_3207	M	13.6	52.27	2015	d	NA	d	d	d	d	d
SK_3208	M	13.6	52.27	2015	d	d	d	d	d	d	d
SK_3209	F	13.6	52.27	2015	d	NA	dd	dd	dd	dd	dd
SK_3210	F	13.6	52.27	2015	d	NA	dd	dd	dd	dd	dd
SK_3211	M	13.6	52.25	2015	d	d	d	d	d	d	d
SK_3212	M	13.79	52.58	2015	d	d	d	d	d	d	d
SK_3213	F	13.6	52.27	2015	d	NA	dd	dd	dd	dd	dd
SK_3350	F	14.12	52.84	2015	d	NA	mm	mm	mm	mm	mm
SK_3351	M	14.12	52.84	2015	d	m	m	m	m	m	m
SK_3352	M	14.12	52.84	2015	d	m	m	m	m	m	m
SK_3353	M	14.12	52.84	2015	d	NA	m	m	m	m	m
SK_3354	M	14.12	52.84	2015	d	m	m	m	m	m	m
SK_3355	M	14.12	52.84	2015	d	m	m	m	m	m	m
SK_3356	F	14.12	52.79	2015	d	NA	mm	mm	mm	mm	mm
SK_3357	M	14.07	52.77	2015	d	NA	m	m	m	m	m
SK_3358	M	14.08	52.77	2015	m	NA	m	m	m	m	m
SK_3359	M	13.88	52.61	2015	m	m	m	m	m	d	m
SK_3360	M	13.88	52.61	2015	m	m	m	m	m	d	m
SK_3361	F	13.45	53.05	2015	d	NA	mm	mm	mm	dm	mm
SK_3362	F	13.88	52.61	2015	m	NA	mm	mm	mm	dd	mm
SK_3363	M	13.88	52.61	2015	m	m	m	m	m	d	m
SK_3364	F	14.12	52.75	2015	d	NA	mm	mm	mm	mm	mm
SK_3365	M	13.88	52.61	2015	m	m	m	m	m	d	m
SK_3366	F	13.43	53.07	2015	d	NA	NA	mm	mm	dm	mm
SK_3367	M	13.76	53.14	2015	d	m	m	m	m	d	m
SK_3368	F	13.65	53.21	2015	d	NA	mm	mm	mm	dd	mm
SK_3369	F	13.67	52.73	2015	d	NA	dd	dm	dd	dd	dd
SK_3370	F	13.46	52.92	2015	d	NA	dd	dd	dd	dd	dd
SK_3371	F	13.43	53.07	2015	d	NA	mm	mm	dm	dd	mm
SK_3372	F	13.88	52.61	2015	m	NA	mm	mm	mm	dd	mm
SK_3373	F	13.67	52.73	2015	d	NA	dd	mm	dd	dd	dd
SK_3374	F	13.88	52.61	2015	d	NA	mm	NA	NA	NA	NA
SK_3375	F	13.67	52.73	2015	d	NA	dd	dd	dd	dd	dd
SK_3376	M	14.18	52.64	2015	d	m	m	m	m	m	m
SK_3377	F	13.97	53	2015	d	NA	mm	mm	mm	dd	mm
SK_3378	F	13.6	52.22	2015	d	NA	dd	dd	dd	dd	dd
SK_3379	F	13.6	52.22	2015	d	NA	dd	dd	dd	dd	dd
SK_4057	M	13.52	52.41	2017	NA	NA	NA	d	d	NA	NA
SK_4058	M	13.02	52.82	2017	NA	d	NA	d	d	NA	d
SK_4059	F	13.02	52.82	2017	NA	NA	NA	dd	dd	NA	dd
SK_4060	F	13.02	52.82	2017	NA	NA	NA	dd	dd	NA	NA

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Sk3173	M	13.38	53.15	2015	d	NA	d	d	d	d	d

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Syap1	Es1	Gpd1	Idh1	Mpi	Np	Sod1	Es1C	Gpd1C	Idh1C	MpiC	NpC
m	94/100	100	100/125	100/120	90/100	80	dm	dd	dm	dm	dm
mm	100	95/100	100	100	90/100	80	mm	dm	dd	dd	dm
m	100	95/100	100/125	120	90	80	mm	dm	dm	mm	mm
m	94/100	100	100/125	120	90/100	80	dm	dd	dm	mm	dm
mm	100	95	100/125	120	100	80	mm	mm	dm	mm	dd
m	100	95	100/125	120	70/100	100	mm	mm	dm	mm	dm
NA	100	100	100/125	120	70/100	80	mm	dd	dm	mm	dm
mm	100	95	100	120	70/100	80	mm	mm	dd	mm	dm
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	90	100	dd	dd	dd	dd	mm
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	100	95	125	120	90/100	80/100	mm	mm	mm	mm	dm
mm	94	95	125	120	90	80	dd	mm	mm	mm	mm
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100/125	100	100	100	dd	dd	dm	dd	dd
d	94	100	100	100	70/100	100	dd	dd	dd	dd	dm
dd	94	95/100	100	100/120	100	100	dd	dm	dd	dm	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	100	100	100	100	90/100	100	mm	dd	dd	dd	dm
d	94	95/100	100	100/120	100	100	dd	dm	dd	dm	dd
dd	94	100	100	100/120	100	100	dd	dd	dd	dm	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	95/100	100	100	100	100	dd	dm	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	70/100	100	dd	dd	dd	dd	dm
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
mm	100	95/100	125	120	90	80	mm	dm	mm	mm	mm
m	94	100	100/125	100/120	90/100	80	dd	dd	dm	dm	dm
mm	94/100	95/100	100	120	90	80	dm	dm	dd	mm	mm
d	94	100	100	100	100	80	dd	dd	dd	dd	dd
mm	94/100	95/100	100/125	120	90/100	80	dm	dm	dm	mm	dm
d	100	100	100	100	90/100	100	mm	dd	dd	dd	dm
dd	94	100	100	100	70/100	100	dd	dd	dd	dd	dm
NA	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
NA	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
NA	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	95/100	100	100	100	100	dd	dm	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	100	100	100	100	100	80	mm	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd

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d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
mm	100	95	125	120	90	80/100	mm	mm	mm	mm	mm
m	100	95	125	120	70/100	80	mm	mm	mm	mm	dm
mm	100	95	125	120	70/100	80	mm	mm	mm	mm	dm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95	125	120	90	100	mm	mm	mm	mm	mm
m	100	95	125	120	90	100	mm	mm	mm	mm	mm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	94	100	100/125	100/120	90/100	80	dd	dd	dm	dm	dm
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
d	94	100	100	100	70/100	100	dd	dd	dd	dd	dm
mm	100	95	125	120	100	80	mm	mm	mm	mm	dd
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	100	95	125	120	90	NA	mm	mm	mm	mm	mm
mm	100	95	125	120	90	100	mm	mm	mm	mm	mm
mm	100	95	125	120	90	NA	mm	mm	mm	mm	mm
mm	100	95	125	120	90	NA	mm	mm	mm	mm	mm
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95	125	120	90	NA	mm	mm	mm	mm	mm
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
NA	94	100	100	100	100	80	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	NA	100	100	dd	dd	dd	NA	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
NA	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	90	100	dd	dd	dd	dd	mm
dd	94	100	100	100	70/100	80	dd	dd	dd	dd	dm
mm	100	95	125	120	70	100	mm	mm	mm	mm	mm
m	100	95	125	120	70	80	mm	mm	mm	mm	mm
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
NA	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95	125	120	100	80	mm	mm	mm	mm	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
mm	100	95	125	120	100	80	mm	mm	mm	mm	dd
mm	100	95	100/125	120	90	80	mm	mm	dm	mm	mm
m	100	100	100	100	100	100	mm	dd	dd	dd	dd
NA	94	100	100/125	100	100	100	dd	dd	dm	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	125	100	90	100	dd	dd	mm	dd	mm
d	100	100	100	100/120	100	80/100	mm	dd	dd	dm	dd
dd	94	100	100	100	100	80	dd	dd	dd	dd	dd
d	94	100	100	100/120	100	100	dd	dd	dd	dm	dd
dd	100	100	100	100	100	100	mm	dd	dd	dd	dd
d	100	100	100	100	100	80	mm	dd	dd	dd	dd
dd	100	100	100	100	100	80	mm	dd	dd	dd	dd

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dd	94	100	100	100/120	100	100	dd	dd	dd	dm	dd
d	94	100	100	100/120	100	80	dd	dd	dd	dm	dd
dd	100	100	100	100	70/100	100	mm	dd	dd	dd	dm
dd	94	95/100	100	100	100	100	dd	dm	dd	dd	dd
dd	94	95/100	100	100	90/100	80	dd	dm	dd	dd	dm
dd	94	100	100/125	100	100	100	dd	dd	dm	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94/100	100	100/125	100	90	100	dm	dd	dm	dd	mm
m	100	95	100	100/120	90	80	mm	mm	dd	dm	mm
dd	94	95	100/125	100/120	90	100	dd	mm	dm	dm	mm
	100	95	100/125	100/120	90	100	mm	mm	dm	dm	mm
mm	94	95/100	100	120	90	80	dd	dm	dd	mm	mm
mm	94	95/100	100	120	70	100	dd	dm	dd	mm	mm
	100	100	100	100	90/100	100	mm	dd	dd	dd	dm
dm	100	95/100	100/125	100	70/90	80	mm	dm	dm	dd	mm
m	100	95/100	100	100/120	70/90	80	mm	dm	dd	dm	mm
dm	100	95/100	100	100/120	70/90	80	mm	dm	dd	dm	mm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
dm	100	95/100	100/125	120	90	80	mm	dm	dm	mm	mm
dm	94	95/100	100/125	100	90/100	100	dd	dm	dm	dd	dm
dm	100	95	100	120	70	80	mm	mm	dd	mm	mm
m	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
mm	100	95	125	120	90/100	80	mm	mm	mm	mm	dm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95	100	120	100	80	mm	mm	dd	mm	dd
m	100	95	100	120	100	100	mm	mm	dd	mm	dd
dd	94	100	100	100/120	100	100	dd	dd	dd	dm	dd
m	94/100	95	100/125	120	100	80	dm	mm	dm	mm	dd
mm	100	95	100/125	120	100	80	mm	mm	dm	mm	dd
m	100	95	100/125	120	90	80	mm	mm	dm	mm	mm
mm	94	95	100	120	90	80	dd	mm	dd	mm	mm
m	94/100	95	125	120	90	80	dm	mm	mm	mm	mm
mm	100	95	125	120	100	80	mm	mm	mm	mm	dd
m	100	95	100/125	120	90/100	80	mm	mm	dm	mm	dm
dm	94	95/100	100	100	90	80/100	dd	dm	dd	dd	mm
NA	100	95	125	120	70/100	80	mm	mm	mm	mm	dm
mm	100	95	125	120	70	80	mm	mm	mm	mm	mm
mm	100	95	125	120	70	80	mm	mm	mm	mm	mm
m	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
mm	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
m	100	95	125	120	100	100	mm	mm	mm	mm	dd
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	100	95	125	120	90/100	80	mm	mm	mm	mm	dm
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
mm	100	95/100	125	120	90/100	100	mm	dm	mm	mm	dm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95/100	100/125	120	100	100	mm	dm	dm	mm	dd
m	100	95	125	120	90/100	80	mm	mm	mm	mm	dm
mm	100	95	100	120	70/100	80	mm	mm	dd	mm	dm
mm	100	95	100/125	120	100	80	mm	mm	dm	mm	dd
mm	100	95	100	120	70/90	80	mm	mm	dd	mm	mm
NA	94/100	95/100	100/125	120	70/90	80	dm	dm	dm	mm	mm

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NA	100	95	125	120	100	80	mm	mm	mm	mm	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	125	100/120	100	100	dd	dd	mm	dm	dd
d	94	95/100	125	100/120	100	100	dd	dm	mm	dm	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
mm	94/100	95	100/125	120	70	80	dm	mm	dm	mm	mm
m	100	95	125	120	70	80/100	mm	mm	mm	mm	mm
m	100	95	125	120	90/100	80	mm	mm	mm	mm	dm
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	90	100	dd	dd	dd	dd	mm
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
NA	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
mm	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	120	100	80	dd	dd	dd	mm	dd
mm	94	100	100	100	100	100	dd	dd	dd	dd	dd
NA	94	100	100	100	100	100	dd	dd	dd	dd	dd
NA	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	100	100	100/125	100	100	100	mm	dd	dm	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
mm	100	95	125	120	70	80	mm	mm	mm	mm	mm
dd	94	100	100	120	100	100	dd	dd	dd	mm	dd
d	94	100	100	100	70	100	dd	dd	dd	dd	mm
NA	94	95	125	120	100	80	dd	mm	mm	mm	dd
NA	100	100	NA	NA	90/100	80/100	mm	dd	NA	NA	dm
NA	100	95/100	125	100/120	70/100	80/100	mm	dm	mm	dm	dm
NA	100	100	NA	100	70/100	NA	mm	dd	NA	dd	dm
d	94/100	100	NA	120	100	80	dm	dd	NA	mm	dd
NA	94	95	125	120	70	100	dd	mm	mm	mm	mm
NA	100	95/100	125	120	90/100	100	mm	dm	mm	mm	dm
d	100	100	100	100/120	90	NA	mm	dd	dd	dm	mm
NA	94	100	100	120	100	80/100	dd	dd	dd	mm	dd
NA	94/100	100	100	100	90	100	dm	dd	dd	dd	mm
NA	100	95	125	120	90	80	mm	mm	mm	mm	mm
dd	94	95/100	125	120	70	100	dd	dm	mm	mm	mm
NA	94	100	100	100/120	100	80	dd	dd	dd	dm	dd
NA	94	100	100	120	100	100	dd	dd	dd	mm	dd
NA	94	100	100	100/120	100	100	dd	dd	dd	dm	dd
dd	94	100	100	120	100	80	dd	dd	dd	mm	dd
NA	94	100	100	100/120	90	NA	dd	dd	dd	dm	mm
dd	94	100	100	100	90/100	100	dd	dd	dd	dd	dm
d	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
NA	100	95	125	120	90	100	mm	mm	mm	mm	mm
NA	100	95	125	120	90	80	mm	mm	mm	mm	mm
dm	100	95	125	120	90	NA	mm	mm	mm	mm	mm

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dd	94	100	100	120	100	80	dd	dd	dd	mm	dd
dd	94	100	100	100/120	100	80	dd	dd	dd	dm	dd
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	94	100	100/125	120	70	80	dd	dd	dm	mm	mm
m	100	95	125	120	70	80	mm	mm	mm	mm	mm
m	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
mm	100	100	100/125	120	90	80	mm	dd	dm	mm	mm
mm	100	95	100	120	100	100	mm	mm	dd	mm	dd
m	100	95	125	120	70/100	80	mm	mm	mm	mm	dm
mm	100	95	125	120	70/100	80	mm	mm	mm	mm	dm
NA	94	95	125	120	100	80	dd	mm	mm	mm	dd
m	94/100	NA	100/125	100	100	100	dm	NA	dm	dd	dd
d	94	100	125	100	70/100	100	dd	dd	mm	dd	dm
mm	100	100	100/125	100	100	80	mm	dd	dm	dd	dd
m											
dd	94	100	100/125	100/120	100	100	dd	dd	dm	dm	dd
m	94	100	125	100	100	100	dd	dd	mm	dd	dd
dd	94/100	100	100/125	100	70/100	100	dm	dd	dm	dd	dm
d	94/100	100	125	100	70	100	dm	dd	mm	dd	mm
dd	94	100	125	100	70/100	100	dd	dd	mm	dd	dm
mm	100	95	125	100	70	80/100	mm	mm	mm	dd	mm
mm	100	95	125	120	70/100	80	mm	mm	mm	mm	dm
mm	100	95	125	120	70/100	80	mm	mm	mm	mm	dm
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	125	100	70	100	dd	dd	mm	dd	mm
dm	100	95/100	100	100	100	80	mm	dm	dd	dd	dd
m	94	100	100/125	120	70	100	dd	dd	dm	mm	mm
d	94	100	100/125	100	70/100	80/100	dd	dd	dm	dd	dm
mm	100	100	125	120	NA	80	mm	dd	mm	mm	NA
dd	94	100	100	100	70	100	dd	dd	dd	dd	mm
d	94	NA	100	100	100	100	dd	NA	dd	dd	dd
m	100	95	125	120	90/100	80	mm	mm	mm	mm	dm
d	94	100	100	100	70/100	100	dd	dd	dd	dd	dm
mm	100	95	100/125	120	90/100	80	mm	mm	dm	mm	dm
mm	100	95	125	120	100	80	mm	mm	mm	mm	dd
m	100	100	125	120	90	80	mm	dd	mm	mm	mm
m	94	95	125	120	90/100	80	dd	mm	mm	mm	dm
mm	100	100	100/125	120	70/90	80/100	mm	dd	dm	mm	mm
mm	100	95/100	100/125	120	90	100	mm	dm	dm	mm	mm
m	100	95	125	120	70	80	mm	mm	mm	mm	mm
m	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
mm	NA	95	125	120	90/100	80	NA	mm	mm	mm	dm
mm	NA	95	125	120	90	80	NA	mm	mm	mm	mm
m	100	95	125	120	100	80	mm	mm	mm	mm	dd
m	100	95	125	120	70/100	80	mm	mm	mm	mm	dm
mm	100	95	100	120	70	80/100	mm	mm	dd	mm	mm
m	NA	95	125	120	70/90	80	NA	mm	mm	mm	mm
mm	NA	95	125	120	70	80	NA	mm	mm	mm	mm
d	94	100	100	100	100	80/100	dd	dd	dd	dd	dd
m	100	95	125	120	70/100	80	mm	mm	mm	mm	dm
mm	94	95	125	120	70/100	80	dd	mm	mm	mm	dm
NA	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
mm	100	95	125	120	70/100	80	mm	mm	mm	mm	dm
mm	100	95/100	100/125	120	100	80	mm	dm	dm	mm	dd

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mm	100	100	125	120	90	80	mm	dd	mm	mm	mm
m	100	95/100	100/125	120	90	80	mm	dm	dm	mm	mm
mm	100	100	100/125	120	90	80	mm	dd	dm	mm	mm
m	100	100	100/125	120	NA	80	mm	dd	dm	mm	NA
m	100	95	100/125	120	NA	100	mm	mm	dm	mm	NA
dm	94	95	100/125	120	NA	80	dd	mm	dm	mm	NA
m	100	95/100	100	120	90	80	mm	dm	dd	mm	mm
dm	100	100	125	120	100	100	mm	dd	mm	mm	dd
m	100	95	100/125	120	90/100	80	mm	mm	dm	mm	dm
mm	100	95/100	100	120	90/100	100	mm	dm	dd	mm	dm
mm	100	95/100	100	120	90	80	mm	dm	dd	mm	mm
mm	100	95	100/125	120	90	100	mm	mm	dm	mm	mm
dd	94/100	95	125	120	70/100	80	dm	mm	mm	mm	dm
dm	94	100	125	120	100	100	dd	dd	mm	mm	dd
mm	94	95/100	100/125	120	100	80	dd	dm	dm	mm	dd
m	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
mm	100	95/100	100	120	90	80	mm	dm	dd	mm	mm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	100	95	125	120	70/100	80	mm	mm	mm	mm	dm
d	94	95/100	100	100/120	100	100	dd	dm	dd	dm	dd
dd	94	95/100	100/125	100	100	80	dd	dm	dm	dd	dd
m	100	100	100	100	70	80/100	mm	dd	dd	dd	mm
m	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
dm	100	95	100	100/120	90	100	mm	mm	dd	dm	mm
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
mm	100	95	100	120	90	80	mm	mm	dd	mm	mm
NA	100	95	125	120	90	80	mm	mm	mm	mm	mm
dd	94	95	100	100/120	100	100	dd	mm	dd	dm	dd
d	100	95/100	100/125	120	70	100	mm	dm	dm	mm	mm
NA	100	95	100/125	120	70	100	mm	mm	dm	mm	mm
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
dd	94	95/100	100	100	90	80/100	dd	dm	dd	dd	mm
d	94	100	100	100	100	80/100	dd	dd	dd	dd	dd
d	94	100	100	100/120	100	80	dd	dd	dd	dm	dd
mm	100	95	125	120	70	80	mm	mm	mm	mm	mm
d	94	95/100	100	100/120	90	100	dd	dm	dd	dm	mm
dd	100	95/100	100/125	100	90/100	80	mm	dm	dm	dd	dm
d	100	95	100	100	100	80	mm	mm	dd	dd	dd
dd	100	95	100	100	100	100	mm	mm	dd	dd	dd
d	100	95/100	100	100	100	80	mm	dm	dd	dd	dd
d	100	95/100	100	100	100	80	mm	dm	dd	dd	dd
dd	94	95	100	100	100	80	dd	mm	dd	dd	dd
d	100	95	125	100	70/100	80	mm	mm	mm	dd	dm
m	94	95	125	120	100	100	dd	mm	mm	mm	dd
d	94	95/100	100	100	100	80	dd	dm	dd	dd	dd
m	100	95	125	120	70	100	mm	mm	mm	mm	mm
mm	NA	95	100	120	70/100	100	NA	mm	dd	mm	dm
mm	NA	95	100/125	120	70/100	80	NA	mm	dm	mm	dm
mm	94/100	95/100	100/125	120	70	100	dm	dm	dm	mm	mm
mm	100	95	125	120	100	80	mm	mm	mm	mm	dd
mm	100	95	125	120	70/100	80	mm	mm	mm	mm	dm
m	94	95	125	120	100	80	dd	mm	mm	mm	dd
mm	100	95	125	120	70	80	mm	mm	mm	mm	mm

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mm	100	95	125	120	100	80	mm	mm	mm	mm	dd
dm	100	95/100	125	120	70/90	80	mm	dm	mm	mm	mm
mm	100	95	100/125	120	NA	100	mm	mm	dm	mm	NA
mm	94	95	100/125	100/120	70/100	80	dd	mm	dm	dm	dm
m	94/100	100	125	120	70/100	80	dm	dd	mm	mm	dm
dd	100	95/100	125	120	70/90	80	mm	dm	mm	mm	mm
m	100	95	100	100	90/100	100	mm	mm	dd	dd	dm
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	94	95	125	120	100	80/100	dd	mm	mm	mm	dd
mm	94	95	125	120	70/100	80/100	dd	mm	mm	mm	dm
mm	100	95	100	120	70	100	mm	mm	dd	mm	mm
dm	100	95	100/125	120	70	100	mm	mm	dm	mm	mm
dd	94	NA	100/125	100	100	80/100	dd	NA	dm	dd	dd
dd	94	95	100	100/120	100	80	dd	mm	dd	dm	dd
mm	NA	95	100	120	70	100	NA	mm	dd	mm	mm
m	94/100	95	100/125	120	70	80	dm	mm	dm	mm	mm
m	100	95	100	120	100	80	mm	mm	dd	mm	dd
m	94	95	100	120	70	80	dd	mm	dd	mm	mm
mm	100	95	100/125	120	70	80	mm	mm	dm	mm	mm
d	100	NA	100/125	100	100	100	mm	NA	dm	dd	dd
m	94	NA	125	120	70	80	dd	NA	mm	mm	mm
m	100	95	125	120	100	80	mm	mm	mm	mm	dd
mm	94/100	95	125	120	70/100	80	dm	mm	mm	mm	dm
mm	100	95	125	120	100	80	mm	mm	mm	mm	dd
m	100	95	125	120	70	80	mm	mm	mm	mm	mm
m	100	95	100/125	120	100	80	mm	mm	dm	mm	dd
mm	100	95	100/125	120	100	80	mm	mm	dm	mm	dd
NA	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
m	100	95	125	120	70	80	mm	mm	mm	mm	mm
m	100	95	125	100/120	70	80	mm	mm	mm	dm	mm
dd	94	100	100	100	90/100	100	dd	dd	dd	dd	dm
mm	100	95	125	120	70/100	80	mm	mm	mm	mm	dm
m	100	95	100/125	120	70	100	mm	mm	dm	mm	mm
m	100	95	100/125	120	90/100	80	mm	mm	dm	mm	dm
mm	100	95	125	100/120	100	80/100	mm	mm	mm	dm	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
m	100	95	125	120	70	80	mm	mm	mm	mm	mm
m	100	95	125	100/120	90/100	100	mm	mm	mm	dm	dm
mm	100	95	125	100/120	100	80	mm	mm	mm	dm	dd
mm	100	95	125	100/120	90/100	80	mm	mm	mm	dm	dm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	100	95	125	100/120	70/100	80	mm	mm	mm	dm	dm
mm	100	95	125	100/120	90	80	mm	mm	mm	dm	mm
mm	100	95	125	120	90	100	mm	mm	mm	mm	mm
m	100	95	100	120	70/90	80	mm	mm	dd	mm	mm
mm	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
dd	94	95/100	100	100	100	80	dd	dm	dd	dd	dd
m	100	95	125	120	70	80	mm	mm	mm	mm	mm
mm	100	95	125	120	70	80	mm	mm	mm	mm	mm
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
m	100	NA	125	120	90	80	mm	NA	mm	mm	mm
mm	100	95	125	100/120	100	80	mm	mm	mm	dm	dd
mm	100	95	125	100/120	70/100	80/100	mm	mm	mm	dm	dm
m	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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mm	100	95	100/125	120	90/100	100	mm	mm	dm	mm	dm
mm	100	95	125	120	90/100	80	mm	mm	mm	mm	dm
mm	100	95	100	120	100	80	mm	mm	dd	mm	dd
NA	100	100	100	100	100	80	mm	dd	dd	dd	dd
m	94	NA	100	100	100	100	dd	NA	dd	dd	dd
dd	94	100	100	100	90/100	100	dd	dd	dd	dd	dm
mm	100	95	125	120	70/100	80/100	mm	mm	mm	mm	dm
NA	94	100	100	100	100	80/100	dd	dd	dd	dd	dd
NA	94	100	100	100	100	100	dd	dd	dd	dd	dd
NA	94	100	100	100	100	100	dd	dd	dd	dd	dd
NA	94/100	95/100	100	100	90/100	NA	dm	dm	dd	dd	dm
mm	100	100	125	120	100	80	mm	dd	mm	mm	dd
mm	100	95/100	125	120	100	80/100	mm	dm	mm	mm	dd
d	94	100	100	100	100	80/100	dd	dd	dd	dd	dd
mm	100	95/100	100/125	120	70/90	80	mm	dm	dm	mm	mm
m	100	95	100/125	100/120	70/100	80	mm	mm	dm	dm	dm
m	100	95	100	120	100	80	mm	mm	dd	mm	dd
d	100	100	100	100/120	100	80	mm	dd	dd	dm	dd
	100	100	100	120	70/100	80	mm	dd	dd	mm	dm
dd	100	95/100	100	120	70/100	80	mm	dm	dd	mm	dm
dm	94/100	100	100	120	70/100	100	dm	dd	dd	mm	dm
d	94/100	100	100	120	70/100	80	dm	dd	dd	mm	dm
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	125	100	110	100	dd	dd	mm	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100/110	100	dd	dd	dd	dd	NA
dd	94	100	100/125	100	110	100	dd	dd	dm	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	90	100	dd	dd	dd	dd	mm
	94	100	100	100	90	100	dd	dd	dd	dd	mm
dd	94	95	100	100	100	100	dd	mm	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100/125	100	100	100	dd	dd	dm	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	100	100	125	100	100	100	mm	dd	mm	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	90	100	dd	dd	dd	dd	mm
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	125	100	110	100	dd	dd	mm	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
mm	94	95	125	120	90	80	dd	mm	mm	mm	mm
mm	100	95	125	120	70/100	80	mm	mm	mm	mm	dm
m	94	95	125	120	70/90	80	dd	mm	mm	mm	mm
d	94	100	100/125	100	100	80	dd	dd	dm	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd

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m	NA	95	125	120	90/100	80	NA	mm	mm	mm	dm
m	100	95	125	120	70/90	80/100	mm	mm	mm	mm	mm
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
mm	94/100	95	125	120	90	80	dm	mm	mm	mm	mm
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
d	94	100	100	100	90	100	dd	dd	dd	dd	mm
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
mm	100	95	100	120	70	80	mm	mm	dd	mm	mm
mm	100	95	125	120	70	80	mm	mm	mm	mm	mm
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dd	94	100	100	100	90	100	dd	dd	dd	dd	mm
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
mm	100	95	100/125	120	70/90	80	mm	mm	dm	mm	mm
mm	100	95	125	120	70/100	80/100	mm	mm	mm	mm	dm
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
mm	100	95	100/125	120	90	100	mm	mm	dm	mm	mm
mm	100	95	125	120	90	100	mm	mm	mm	mm	mm
m	100	95	100/125	120	70/100	100	mm	mm	dm	mm	dm
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	100	95	125	120	70/100	80	mm	mm	mm	mm	dm
mm	94/100	95	125	100/120	70	100	dm	mm	mm	dm	mm
mm	100	95	125	100/120	70/100	100	mm	mm	mm	dm	dm
dd	94/100	100	100	100	70/90	100	dm	dd	dd	dd	mm
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95	125	120	100	100	mm	mm	mm	mm	dd
mm	100	95	125	120	70	100	mm	mm	mm	mm	mm
m	100	95	100/125	120	70/90	100	mm	mm	dm	mm	mm
m	100	95	100/125	120	90	100	mm	mm	dm	mm	mm
mm	100	95	NA	NA	NA	100	mm	mm	NA	NA	NA
mm	100	95	125	120	100	100	mm	mm	mm	mm	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	95/100	100	100/120	90	80/100	dd	dm	dd	dm	mm
d	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m	100	95	125	120	70/90	80/100	mm	mm	mm	mm	mm
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dm	94	95/100	100/125	100	100	80	dd	dm	dm	dd	dd
m	100	95	125	120	100	80	mm	mm	mm	mm	dd
mm	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
mm	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95	125	120	70	80	mm	mm	mm	mm	mm
mm	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
m	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
mm	100	95	125	120	70/90	80/100	mm	mm	mm	mm	mm
m	NA	95	125	120	90	80	NA	mm	mm	mm	mm

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mm	94	95	125/155	120	90	100	dd	mm	mm	mm	mm
m	100	95	125	120	70/90	100	mm	mm	mm	mm	mm
mm	100	95	125	120	90/100	100	mm	mm	mm	mm	dm
m	100	95	125	120	90/100	80	mm	mm	mm	mm	dm
m	100	95	125	120	70/90	100	mm	mm	mm	mm	mm
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
m	94	95	125	100	70/100	80	dd	mm	mm	dd	dm
dm	94	100	100	100	100	100	dd	dd	dd	dd	dd
dm	100	95	100/125	120	90	80	mm	mm	dm	mm	mm
dm	100	95	100/125	120	90/100	80	mm	mm	dm	mm	dm
dm	100	95	100/125	120	90	80	mm	mm	dm	mm	mm
m	94	95/100	100/125	120	100	100	dd	dm	dm	mm	dd
m	100	100	125	120	70/90	80	mm	dd	mm	mm	mm
mm	100	95	125	120	90/100	80	mm	mm	mm	mm	dm
mm	100	95	100	120	90	80	mm	mm	dd	mm	mm
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
mm	100	95	125	120	90/100	80	mm	mm	mm	mm	dm
mm	100	95	125	120	90	100	mm	mm	mm	mm	mm
m	100	95/100	125	120	90	80	mm	dm	mm	mm	mm
d	100	95	125	120	90	80	mm	mm	mm	mm	mm
dm	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	100	125	120	90	80/100	mm	dd	mm	mm	mm
m	100	95	100/125	120	90/100	80	mm	mm	dm	mm	dm
d	100	95	125	120	90	NA	mm	mm	mm	mm	mm
dd	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95	125/155	120	90	80	mm	mm	mm	mm	mm
mm	94	95/100	125	120	90/100	NA	dd	dm	mm	mm	dm
mm	100	95	125	120	70/90	NA	mm	mm	mm	mm	mm
d	100	95	125	120	90	100	mm	mm	mm	mm	mm
d	94	95/100	100	100	100	100	dd	dm	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	95/100	100	100	100	100	dd	dm	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
m	94	95	100/125	100/120	90/100	80/100	dd	mm	dm	dm	dm
m	100	95	125	120	70	100	mm	mm	mm	mm	mm
mm	100	95	125	120	100	80	mm	mm	mm	mm	dd
mm	100	95	125	120	90	100	mm	mm	mm	mm	mm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95	125	120	70	80	mm	mm	mm	mm	mm
dm	100	95	100/125	120	90	80	mm	mm	dm	mm	mm
m	100	95	100/125	120	90	80	mm	mm	dm	mm	mm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
dm	100	95	100	120	90	80	mm	mm	dd	mm	mm
mm	100	95	100/125	120	90	80	mm	mm	dm	mm	mm
m	100	95	125	120	100	80	mm	mm	mm	mm	dd

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m	100	95	125	120	70	80	mm	mm	mm	mm	mm
mm	100	95	155	120	100	80	mm	mm	mm	mm	dd
mm	100	95	125	120	90	100	mm	mm	mm	mm	mm
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	95/100	100	100	90/100	100	dd	dm	dd	dd	dm
dd	94/100	95	125	100/120	100	80	dm	mm	mm	dm	dd
dd	100	100	100	100	100	100	mm	dd	dd	dd	dd
d/d	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
d/d	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
d/d	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
d/d	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
d	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dd											
dd											
dd											
dd											
d											
d	94	100	100	120	100	100	dd	dd	dd	mm	dd
d	94	100	100	120	100	100	dd	dd	dd	mm	dd
dd	94	100	100	120	100	80	dd	dd	dd	mm	dd
dd	94	100	100	120	100	100	dd	dd	dd	mm	dd
d	100	100	100	120	100	100	mm	dd	dd	mm	dd
m	100	95	125	120	70/100	80	mm	mm	mm	mm	dm
mm	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95	100/125	120	90	80	mm	mm	dm	mm	mm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	100	95	125	120	90/100	100	mm	mm	mm	mm	dm
mm	100	95	100/125	120	90	80	mm	mm	dm	mm	mm
mm	100	95	100/125	120	90/100	80	mm	mm	dm	mm	dm
m	100	95/100	125	120	90	80	mm	dm	mm	mm	mm
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	95/100	100	100	100	100	dd	dm	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
m	100	100	125	120	100	100	mm	dd	mm	mm	dd
dd	94/100	100	100	100/120	100	100	dm	dd	dd	dm	dd
mm	94	95	125	120	70/100	80	dd	mm	mm	mm	dm
mm	100	95	125/155	120	100	80	mm	mm	mm	mm	dd
m	100	95/100	125	120	90	80	mm	dm	mm	mm	mm
m	100	95	100/125	100	100	80	mm	mm	dm	dd	dd
mm	100	95	125	100	90/100	80	mm	mm	mm	dd	dm
m	100	95	125	120	90/100	80	mm	mm	mm	mm	dm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	100	95	125	100/120	90/100	100	mm	mm	mm	dm	dm
d	94/100	100	100	100/120	100	80	dm	dd	dd	dm	dd
m	94/100	95	125	120	90/100	80/100	dm	mm	mm	mm	dm
m	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
d	94	100	125	100	100	100	dd	dd	mm	dd	dd
mm	100	95	125	120	70/90	80	mm	mm	mm	mm	mm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	94	95/100	125	120	100	100	dd	dm	mm	mm	dd
mm	100	95/100	125	120	90	80	mm	dm	mm	mm	mm

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dm	100	95	125	120	70	100	mm	mm	mm	mm	mm
m	100	95	125	120	90	100	mm	mm	mm	mm	mm
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	100	100	100	100	100	100	mm	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	100	100	100	100	100	100	mm	dd	dd	dd	dd
dd	94	95	100	100/120	90/100	100	dd	mm	dd	dm	dm
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
d	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
mm	100	95	125	120	90	NA	mm	mm	mm	mm	mm
m	NA	95	NA	120	90	NA	NA	mm	NA	mm	mm
m	NA	95	125	120	90	NA	NA	mm	mm	mm	mm
m	NA	95	125	120	70	NA	NA	mm	mm	mm	mm
m	100	95	125	120	90	NA	mm	mm	mm	mm	mm
m	100	95	125	120	90	NA	mm	mm	mm	mm	mm
mm	94/100	100	125	120	90	80	dm	dd	mm	mm	mm
m	100	95	125	120	100	100	mm	mm	mm	mm	dd
m	100	95	125	120	70	80	mm	mm	mm	mm	mm
m	100	100	125	120	90	100	mm	dd	mm	mm	mm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95	100/125	120	100	80	mm	mm	dm	mm	dd
mm	100	95	125	120	90	80	mm	mm	mm	mm	mm
m	100	95	155	120	90/100	80	mm	mm	mm	mm	dm
mm	94	95	125	120	90	100	dd	mm	mm	mm	mm
d	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95	100/125	120	90	80	mm	mm	dm	mm	mm
m	100	95	125	120	90	80	mm	mm	mm	mm	mm
mm	100	95	125/155	120	90/100	100	mm	mm	mm	mm	dm
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	94	95	100	100/120	100	100	dd	mm	dd	dm	dd
mm	100	95	100/125	120	90	80	mm	mm	dm	mm	mm
mm	100	95	125	120	90/100	80	mm	mm	mm	mm	dm
dd	94	100	100	100/120	100	100	dd	dd	dd	dm	dd
NA	100	95	125	120	90	100	mm	mm	mm	mm	mm
dd	94	95	100	100	100	100	dd	mm	dd	dd	dd
m	94/100	95	125	120	70/100	100	dm	mm	mm	mm	dm
mm	100	95	125	120	90/100	100	mm	mm	mm	mm	dm
dd	94	100	100	100	100	100	dd	dd	dd	dd	dd
dd	100	100	100/125	100	100	100	mm	dd	dm	dd	dd
NA	94	100	100	100	100	100	dd	dd	dd	dd	dd
NA	94	100	100	100	90	80	dd	dd	dd	dd	mm
NA	94	100	100	100	90	100	dd	dd	dd	dd	mm
NA	94	100	100	100	90	80	dd	dd	dd	dd	mm

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d	100	100	125	120	100	100	NA	NA	NA	NA	NA

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Sod1C	HI_NLoci	HI	Body_weight	Body_length	Tail_length	Capture
mm	HI 14	0.65	18.3	78	83	2016-09-23
mm	HI 13	0.72	19.825	88	92	2016-09-23
mm	HI 14	0.85	18.53	83	79	2016-09-23
mm	HI 14	0.7	17.634	82	78	2016-09-23
mm	HI 13	0.76	14.226	76	69	2016-09-23
dd	HI 13	0.578947368	17.039	83	79	2016-09-23
mm	HI 12	0.608695652	20.184	85	78	2016-09-23
mm	HI 12	0.708333333	13.833	69	72	2016-09-23
dd	HI 14	0	15.181	80	89	2016-09-23
dd	HI 13	0.08	8.751	62	80	2016-09-23
dd	HI 13	0	11.477	76	85	2016-09-23
mm	HI 12	0.916666667	22.044	100	87	2016-09-23
dm	HI 14	0.85	17.826	88	86	2016-09-23
mm	HI 13	0.84	26.264	94	82	2016-09-23
dd	HI 14	0	11.937	72	80	2016-09-23
dd	HI 13	0.04	17.289	87	92	2016-09-23
dd	HI 14	0.1	9.764	65	74	2016-09-23
dd	HI 13	0.08	16.199	73	88	2016-09-24
dd	HI 14	0	14	75	81	2016-09-24
dd	HI 13	0.12	19.447	87	89	2016-09-24
dd	HI 14	0.1	18.73	79	86	2016-09-24
dd	HI 13	0.04	16.799	83	89	2016-09-24
dd	HI 14	0	14.252	78	87	2016-09-24
dd	HI 13	0	13.956	72	85	2016-09-24
dd	HI 13	0.04	13.654	78	88	2016-09-24
dd	HI 13	0	15.107	75	82	2016-09-24
dd	HI 13	0	18.033	85	79	2016-09-24
dd	HI 13	0	19.747	86	88	2016-09-24
dd	HI 13	0	17.084	84	81	2016-09-24
dd	HI 14	0.05	21.853	86	86	2016-09-24
dd	HI 13	0	25.724	92	90	2016-09-24
dd	HI 13	0	14.418	74	73	2016-09-24
dd	HI 14	0.1	14.533	75	83	2016-09-24
dd	HI 13	0	12.512	72	80	2016-09-24
dd	HI 14	0.05	18.354	86	91	2016-09-24
dd	HI 13	0	12.015	72	81	2016-09-24
mm	HI 12	0.913043478	17.938	85	79	2016-09-24
mm	HI 10	0.5	20.04	82	82	2016-09-24
mm	HI 13	0.8	28.266	91	92	2016-09-24
mm	HI 11	0.117647059	16.173	75	93	2016-09-24
mm	HI 12	0.782608696	15.419	81	75	2016-09-24
dd	HI 14	0.2	12.439	73	81	2016-09-24
dd	HI 11	0.047619048	10.819	68	71	2016-09-24
dd	HI 8	0	11.176	75	76	2016-09-25
dd	HI 10	0	11.599	68	73	2016-09-25
dd	HI 6	0	16.711	77	79	2016-09-25
dd	HI 10	0.0625	16.258	81	85	2016-09-25
dd	HI 13	0.04	16.76	81	83	2016-09-25
dd	HI 14	0.05	12.15	69	76	2016-09-25
dd	HI 6	0	20.254	85	80	2016-09-25
dd	HI 12	0.055555556	10.515	71	61	2016-09-25
dd	HI 14	0	15.579	80	81	2016-09-25
mm	HI 11	0.294117647	17.583	78	84	2016-09-25
dd	HI 12	0	5.823	59	66	2016-09-25

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dd	HI 14	0	16.541	84	91	2016-09-25
dd	HI 14	0	14.945	77	78	2016-09-25
dm	HI 12	0.913043478	17.78	86	76	2016-09-25
mm	HI 13	0.947368421	20.586	91	84	2016-09-25
mm	HI 12	0.869565217	15.274	82	72	2016-09-25
mm	HI 13	0.894736842	14.14	76	66	2016-09-25
dd	HI 13	0.88	22.351	84	75	2016-09-25
dd	HI 13	0.842105263	16.921	82	79	2016-09-25
mm	HI 13	0.947368421	18.13	85	75	2016-09-25
mm	HI 13	0.578947368	18.718	83	86	2016-09-24
mm	HI 12	0.869565217	6.71	68	57	2016-09-26
mm	HI 13	0.894736842	4.11	46	49	2016-09-26
dd	HI 13	0.157894737	9.768	64	76	2016-09-26
mm	HI 12	0.782608696	9.076	64	67	2016-09-26
mm	HI 13	0.947368421	10.31	70	67	2016-09-25
NA	HI 12	0.882352941	16.562	79	70	2016-09-25
dd	HI 13	0.92	11.378	65	73	2016-09-25
NA	HI 12	0.913043478	12.73	83	76	2016-09-25
NA	HI 12	0.869565217	13.96	73	73	2016-09-25
mm	HI 12	0.869565217	15.73	84	74	2016-09-26
mm	HI 9	0.888888889	21.55	94	71	2016-09-26
NA	HI 12	1	11.23	71	72	2016-09-25
dd	HI 13	0	16.351	80	81	2016-09-26
dd	HI 13	0.04	8.381	63	66	2016-09-25
dd	HI 12	0.043478261	15.57	72	85	2016-09-26
mm	HI 9	0.235294118	11.784	72	78	2016-09-26
dd	HI 14	0.05	17.7	88	80	2016-09-26
dd	HI 13	0	10.008	67	60	2016-09-26
dd	HI 12	0	21.588	86	89	2016-09-26
dd	HI 13	0	12.38	72	75	2016-09-26
dd	HI 11	0	10.634	65	70	2016-09-26
dd	HI 14	0	20.25	85	86	2016-09-26
dd	HI 13	0	17.374	87	89	2016-09-26
dd	HI 13	0	19.85	82	75	2016-09-26
dd	HI 12	0	17.561	82	84	2016-09-26
dd	HI 14	0.1	6.063	59	57	2016-09-26
mm	HI 12	0.130434783	17.73	80	84	2016-09-26
dd	HI 13	0.84	17.62	90	79	2016-09-27
mm	HI 14	0.85	9.8	64	56	2016-09-27
mm	HI 13	0.8	19.01	84	77	2016-09-27
mm	HI 10	0.875	12.47	74	72	2016-09-27
mm	HI 12	0.782608696	16.152	82	78	2016-09-27
dd	HI 13	0	11.986	NA	NA	2016-09-27
mm	HI 12	0.869565217	15.83	82	72	2016-09-27
mm	HI 13	0.92	11.39	80	74	2016-09-27
dd	HI 14	0.2	20.668	83	82	2016-09-28
dd	HI 12	0.173913043	15.51	76	86	2016-09-28
dd	HI 14	0.05	12.05	69	78	2016-09-28
dd	HI 13	0.24	10.816	69	73	2016-09-28
dm	HI 14	0.25	21.245	85	85	2016-09-28
mm	HI 13	0.12	19.01	85	87	2016-09-28
dd	HI 13	0.105263158	13.75	75	81	2016-09-28
dd	HI 13	0.16	13.03	75	75	2016-09-28
mm	HI 14	0.25	17.37	80	83	2016-09-28
mm	HI 13	0.16	14.96	78	85	2016-09-28

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dd	HI 13	0.12	21.269	90	85	2016-09-28
mm	HI 13	0.157894737	11.63	69	77	2016-09-28
dd	HI 13	0.2	20.54	90	84	2016-09-28
dd	HI 13	0.12	26.38	89	85	2016-09-28
mm	HI 13	0.16	20.26	86	78	2016-09-28
dd	HI 13	0.2	15.565	80	85	2016-09-28
dd	HI 13	0	16.28	82	82	2016-09-28
dd	HI 13	0.32	13.89	80	75	2016-09-28
mm	HI 14	0.6	14.46	80	80	2016-09-28
dd	HI 13	0.4	11.39	73	81	2016-09-28
dd	HI 9	0.533333333	16.418	84	84	2016-09-28
mm	HI 13	0.52	18.09	89	81	2016-09-28
dd	HI 13	0.52	11.83	70	75	2016-09-28
dd	HI 7	0.230769231	17.1	81	80	2016-09-28
mm	HI 13	0.72	21.551	86	90	2016-09-28
mm	HI 14	0.7	20.567	84	90	2016-09-28
mm	HI 13	0.56	19.85	89	82	2016-09-28
mm	HI 14	0.9	17.61	83	70	2016-09-28
mm	HI 13	0.6	28.14	85	83	2016-09-28
dd	HI 12	0.304347826	15.9	81	80	2016-09-28
mm	HI 13	0.6	18.9	80	81	2016-09-28
NA	HI 7	0.714285714	16.59	82	71	2016-09-28
mm	HI 13	0.84	11.955	74	69	2016-09-28
mm	HI 14	0.9	12.41	75	69	2016-09-28
mm	HI 13	0.8	25.49	104	90	2016-09-28
dd	HI 14	0.65	17.553	80	82	2016-09-28
dd	HI 13	0.04	17.69	88	86	2016-09-28
mm	HI 14	0.75	17.75	82	81	2016-09-28
mm	HI 13	0.84	18.359	90	80	2016-09-28
mm	HI 14	0.85	14.4	79	70	2016-09-29
mm	HI 12	0.75	11.16	70	60	2016-09-29
mm	HI 14	0.85	15.53	80	65	2016-09-29
mm	HI 13	0.72	9.07	67	59	2016-09-29
mm	HI 14	0.8	19.24	85	70	2016-09-29
dm	HI 13	0.56	21.23	95	91	2016-09-28
mm	HI 8	0.857142857	18.93	86	71	2016-09-29
mm	HI 13	0.88	7.894	64	59	2016-09-29
mm	HI 13	0.88	16.04	86	75	2016-09-29
mm	HI 13	0.947368421	15.21	79	75	2016-09-29
mm	HI 13	0.88	16.65	84	78	2016-09-29
mm	HI 14	0.9	15.92	81	75	2016-09-29
mm	HI 13	0.88	15.07	83	75	2016-09-29
dd	HI 13	0.789473684	6.443	58	49	2016-09-29
mm	HI 13	0.84	11.32	70	69	2016-09-29
mm	HI 14	0.85	11	69	59	2016-09-29
mm	HI 13	0.96	15.85	80	73	2016-09-29
mm	HI 14	0.95	17.833	81	NA	2016-09-29
dd	HI 13	0.72	10.43	68	68	2016-09-29
mm	HI 14	0.9	12.52	74	70	2016-09-29
dd	HI 13	0.64	18.28	85	77	2016-09-29
mm	HI 14	0.85	11.8	71	65	2016-09-29
mm	HI 13	0.64	15.29	83	73	2016-09-29
mm	HI 13	0.76	15.56	90	80	2016-09-29
mm	HI 12	0.739130435	14.32	79	71	2016-09-29
mm	HI 8	0.714285714	16.625	84	76	2016-09-29

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mm	HI 9	0.823529412	14.01	82	79	2016-09-29
dd	HI 13	0	21.69	83.04	87.61	10-09-17
dd	HI 13	0.12	12.37	72.92	69.4	10-09-17
dd	HI 13	0.210526316	13.89	76.19	79.88	10-09-17
dd	HI 13	0.24	10.54	69.72	67.29	10-09-17
mm	HI 13	0.84	13.83	74.78	77.92	11-09-17
dm	HI 14	0.9	14.97	79.71	68.88	11-09-17
mm	HI 14	0.85	11.13	70.42	70.4	11-09-17
dd	HI 12	0.083333333	10.47	69.45	76.75	11-09-17
dd	HI 14	0.1	19.13	86.99	NA	11-09-17
dd	HI 13	0.16	12.45	73.87	73.54	11-09-17
dd	HI 13	0	23.58	87.94	90.55	11-09-17
dd	HI 13	0	14.87	80.11	81.7	11-09-17
dd	HI 14	0	25.74	94.62	96.15	11-09-17
dd	HI 14	0	13.03	76.88	75.31	11-09-17
dd	HI 13	0	17.39	84.83	88.81	11-09-17
dd	HI 14	0.05	18.36	84.24	81	11-09-17
dd	HI 10	0.1	16.71	85.36	80.96	11-09-17
dd	HI 12	0	16.46	82.03	79.15	11-09-17
dd	HI 13	0	8.76	65.53	75.2	11-09-17
dd	HI 13	0.16	19.31	83.51	90.74	11-09-17
dd	HI 14	0	16.84	82.62	75.34	11-09-17
mm	HI 13	0.16	13.03	77.94	77.52	11-09-17
dd	HI 12	0.083333333	12.85	71.94	73.96	11-09-17
dd	HI 10	0	17.82	83.01	79.18	11-09-17
dd	HI 12	0	11.69	72	71.17	11-09-17
dd	HI 13	0	21.39	87.56	83.37	11-09-17
dd	HI 13	0	27.83	83.43	80.67	11-09-17
dd	HI 12	0.222222222	18.98	82.8	75.69	11-09-17
dd	HI 14	0.1	8.33	63.74	63.49	11-09-17
mm	HI 12	0.956521739	14.7	79.68	78.32	11-09-17
dd	HI 13	0.08	16.24	79.5	84.22	11-09-17
dd	HI 14	0.15	17.83	82	80.27	12-09-17
mm	HI 7	0.615384615	9.62	69.25	72.22	12-09-17
dm	HI 5	0.444444444	18.38	83.31	77.16	12-09-17
dm	HI 6	0.666666667	25.42	98.5	95.6	12-09-17
NA	HI 4	0.375	11.02	69.54	76.51	12-09-17
mm	HI 13	0.277777778	6.55	58.02	63.87	12-09-17
dd	HI 6	0.666666667	18.93	81.23	66.75	12-09-17
dd	HI 7	0.615384615	12.25	76.65	73.81	12-09-17
NA	HI 13	0.333333333	24.1	92.89	105	12-09-17
dm	HI 7	0.307692308	14.24	79.54	84.24	12-09-17
dd	HI 7	0.230769231	9.21	66.98	75	12-09-17
mm	HI 6	1	15.43	75.78	NA	12-09-17
dd	HI 13	0.6	7.45	63.95	67.4	12-09-17
mm	HI 8	0.214285714	11.39	74.14	74.14	12-09-17
dd	HI 6	0.166666667	9.57	66.58	72.23	12-09-17
dd	HI 6	0.083333333	16.45	77.02	77.01	12-09-17
mm	HI 11	0.272727273	21.51	84.53	85.33	12-09-17
NA	HI 12	0.176470588	10.04	66.99	70.05	12-09-17
dd	HI 13	0.04	11.87	71.15	79.27	12-09-17
mm	HI 14	0.9	7.89	65.91	60.55	12-09-17
dd	HI 10	0.8125	7.01	62.14	60.69	12-09-17
mm	HI 13	0.947368421	8.82	63.95	59.64	12-09-17
NA	HI 12	0.869565217	15.34	82.63	73.52	12-09-17

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mm	HI 13	0.16	13.94	73.79	75.48	12-09-17
mm	HI 13	0.12	15.55	74.77	80.31	12-09-17
mm	HI 13	0.88	13.69	74.77	74.66	13-09-17
mm	HI 14	0.7	3.96	53.98	50.98	13-09-17
mm	HI 14	0.9	16.24	82.04	69.37	13-09-17
mm	HI 14	0.95	14.62	77.35	68.87	13-09-17
mm	HI 13	0.8	17.74	82.33	79.2	13-09-17
dd	HI 13	0.76	9.58	69.5	70.3	13-09-17
mm	HI 13	0.894736842	16.97	85.87	84.22	13-09-17
mm	HI 13	0.88	17.23	86.84	81.97	13-09-17
mm	HI 12	0.782608696	18.7	89.5	80.82	13-09-17
dd	HI 13	0.388888889	17.9	84.25	96.58	13-09-17
dd	HI 14	0.2	18.92	83.28	91.96	13-09-17
mm	HI 13	0.52	15.58	82.08	81.92	13-09-17
	HI 7	0.714285714	NA	NA	NA	NA
	HI 6	0.666666667	NA	NA	NA	NA
dd	HI 13	0.2	7.07	57.55	66.71	13-09-17
dd	HI 13	0.263157895	12.79	73.74	82.9	13-09-17
dd	HI 13	0.12	16.75	78.75	85.58	13-09-17
dd	HI 14	0.3	14.44	75.23	82.77	13-09-17
dd	HI 13	0.24	15.87	83.14	89.49	13-09-17
dm	HI 13	0.8	7.75	60.4	56.93	13-09-17
mm	HI 13	0.88	14.12	77.78	73.49	13-09-17
mm	HI 13	0.96	19.84	78.14	68.08	13-09-17
dd	HI 13	0	16.43	87.56	85.8	13-09-17
dd	HI 14	0.3	13.68	66.99	83.2	13-09-17
mm	HI 13	0.48	18.73	80.01	82.41	13-09-17
dd	HI 13	0.631578947	10.59	69.08	62.84	13-09-17
dm	HI 14	0.25	17.55	82.54	84.4	13-09-17
mm	HI 12	0.826086957	16.05	82.77	72.63	13-09-17
dd	HI 13	0.08	14.2	73.41	74.28	13-09-17
dd	HI 13	0.055555556	16.37	79.23	84.3	13-09-17
mm	HI 13	0.894736842	9.42	69.59	65.19	14-09-17
dd	HI 14	0.15	16.85	77.72	87.97	14-09-17
mm	HI 12	0.826086957	8.1	69.25	60.8	14-09-17
mm	HI 13	0.84	15.54	81.92	73.32	14-09-17
mm	HI 14	0.8	14.71	79.52	73.51	14-09-17
mm	HI 14	0.7	12.71	75.86	75.86	14-09-17
dm	HI 13	0.72	17.17	84.8	75.82	14-09-17
dd	HI 13	0.76	7.65	64.2	68.05	14-09-17
mm	HI 14	1	16.09	80.24	80.38	14-09-17
mm	HI 13	0.894736842	15.75	82.68	77.85	14-09-17
mm	HI 12	0.956521739	16.77	80.89	75.87	14-09-17
mm	HI 12	0.956521739	16.89	82.56	76.29	14-09-17
mm	HI 14	0.9	17.87	82.12	76.82	14-09-17
mm	HI 13	0.947368421	12.16	73.26	68.44	14-09-17
dm	HI 13	0.84	13.65	76.7	71.65	14-09-17
mm	HI 13	0.944444444	5.26	55.3	53.09	14-09-17
mm	HI 12	0.913043478	14.58	81.18	73.78	14-09-17
dm	HI 14	0.15	17.49	82.87	90.18	14-09-17
mm	HI 12	0.888888889	17.63	84.42	81.46	14-09-17
mm	HI 12	0.826086957	22.19	80.3	73.83	14-09-17
mm	HI 12	0.913043478	15.8	80.13	63.74	14-09-17
mm	HI 13	0.84	17.21	78.79	76.52	14-09-17
mm	HI 13	0.76	14.79	80.06	73.72	14-09-17

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mm	HI 13	0.8	17.24	87.46	73.57	14-09-17
mm	HI 14	0.8	9.25	64.07	58.32	14-09-17
mm	HI 12	0.739130435	19.29	86.1	77.13	14-09-17
mm	HI 12	0.705882353	6.77	64.54	59.54	14-09-17
dd	HI 13	0.777777778	17.49	77.47	67.8	14-09-17
mm	HI 12	0.695652174	18.27	90.95	73.72	14-09-17
mm	HI 14	0.75	17.18	80.78	71.76	14-09-17
dd	HI 13	0.6	20.27	94.9	77.88	14-09-17
mm	HI 14	0.8	16.56	79.77	70.3	14-09-17
dd	HI 13	0.68	18.85	86.95	77.48	14-09-17
mm	HI 13	0.8	7.22	61.21	59.6	14-09-17
dd	HI 13	0.8	20.09	85.06	79.03	14-09-17
mm	HI 13	0.44	7.75	60.66	53.39	14-09-17
dd	HI 13	0.52	10.83	69.37	63.34	14-09-17
mm	HI 13	0.64	26.7	89.31	73.95	14-09-17
mm	HI 14	0.95	9.97	68.21	53.64	14-09-17
mm	HI 12	0.739130435	10.9	70.26	68.28	14-09-17
mm	HI 12	0.944444444	19.62	86.14	86.12	15-09-17
mm	HI 14	0.9	15.11	82.76	78.55	15-09-17
dd	HI 14	0.2	14.29	74.15	NA	15-09-17
mm	HI 14	0.230769231	18.4	85.41	89.2	15-09-17
dm	HI 14	0.55	13.12	73.7	70.01	15-09-17
mm	HI 13	0.947368421	11.88	71.9	68.31	15-09-17
dd	HI 13	0.68	15.87	82.73	73.19	15-09-17
mm	HI 13	0.92	16.53	88.37	74.11	15-09-17
mm	HI 14	0.95	17.97	84.51	74.11	15-09-17
dd	HI 13	0.08	20.34	84.42	83.35	15-09-17
mm	HI 13	0.8	13.96	74.4	72.8	15-09-17
mm	HI 6	1	12.91	76.76	71.6	15-09-17
dd	HI 13	0.2	21.69	91.3	86.15	15-09-17
dd	HI 14	0.55	15.4	77.68	79.36	15-09-17
dd	HI 10	0.75	16.8	81.48	NA	15-09-17
mm	HI 12	0.913043478	15.72	84.36	78.88	15-09-17
dm	HI 13	0.28	22.69	88.89	79.37	15-09-17
dm	HI 12	0.111111111	20.77	87.96	71.88	15-09-17
mm	HI 14	0.3	16.54	80.22	76.33	15-09-17
mm	HI 13	0.92	16.27	83.7	78.01	15-09-17
dd	HI 14	0.35	13.07	73.4	76.44	15-09-17
mm	HI 13	0.44	24.14	92.59	81.16	15-09-17
mm	HI 13	0.421052632	17.35	77.4	69.3	15-09-17
dd	HI 13	0.24	16.61	79.55	74.26	15-09-17
mm	HI 14	0.35	15.42	78.95	70.3	15-09-17
mm	HI 14	0.4	9.09	64.49	58.53	15-09-17
mm	HI 13	0.32	18.33	80.84	86.96	15-09-17
mm	HI 14	0.6	16.03	81.28	76.11	15-09-17
dd	HI 14	0.65	15.33	81.51	75.03	15-09-17
mm	HI 14	0.25	15.94	80.19	71.35	15-09-17
dd	HI 12	0.833333333	18.73	79.98	70.91	15-09-17
dd	HI 11	0.666666667	10.94	71.93	68.93	15-09-17
mm	HI 12	0.869565217	19.03	85.09	75.59	15-09-17
dd	HI 13	0.64	15.82	83.2	78.85	15-09-17
mm	HI 12	0.869565217	7.98	62.51	58.21	15-09-17
mm	HI 12	0.826086957	13.89	77.14	71.84	15-09-17
mm	HI 14	0.75	9.09	65.73	58.12	15-09-17
mm	HI 13	0.92	11.06	68.72	62.18	15-09-17

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mm	HI 13	0.88	17.73	85.83	42.77	15-09-17
mm	HI 13	0.84	8.63	64.55	47.5	15-09-17
dd	HI 12	0.869565217	14.04	75.24	67.14	15-09-17
mm	HI 13	0.8	20.85	83.73	88.63	15-09-17
mm	HI 14	0.75	16	77.24	77.13	15-09-17
mm	HI 13	0.8	8.06	60.24	54.37	15-09-17
dd	HI 14	0.65	10.22	67.59	67.95	15-09-17
mm	HI 13	0.92	13.4	73.71	63.71	15-09-17
dm	HI 13	0.684210526	10.87	70.13	59.16	15-09-17
dm	HI 13	0.8	12.48	69.31	63.5	15-09-17
dd	HI 13	0.8	12.98	67.4	69.74	15-09-17
dd	HI 13	0.64	18.45	79.2	72.83	15-09-17
dm	HI 12	0.391304348	20.03	84.76	79.89	15-09-17
mm	HI 13	0.28	20.88	85.22	64.48	15-09-17
dd	HI 12	0.652173913	5.83	55.62	61.56	15-09-20
mm	HI 14	0.85	12.47	75.09	69.89	15-09-20
mm	HI 13	0.736842105	8.44	66.83	70.97	16-09-17
mm	HI 14	0.7	14.04	73.11	81	16-09-17
mm	HI 13	0.84	8.1	61.75	65.18	16-09-17
dd	HI 12	0.176470588	15.92	77.13	88.98	16-09-17
mm	HI 13	0.833333333	16.88	80.69	71.77	16-09-17
mm	HI 14	0.85	17.24	82.22	75.58	16-09-17
mm	HI 13	0.88	21.28	85.97	75.35	16-09-17
mm	HI 13	0.84	12.48	73.42	71.5	16-09-17
mm	HI 14	0.9	16.91	79.85	76.04	16-09-17
mm	HI 13	0.789473684	17.97	82.64	80.03	16-09-17
mm	HI 12	0.826086957	11	71.29	71.82	16-09-17
mm	HI 11	1	11.67	71.45	76.94	16-09-17
mm	HI 13	0.947368421	10.31	69.68	68.81	16-09-17
mm	HI 13	0.894736842	12.98	73.32	70.77	16-09-17
dd	HI 12	0.043478261	11.54	73.92	85.25	16-09-17
mm	HI 12	0.913043478	12.23	79.78	68.53	16-09-17
dd	HI 13	0.736842105	13.07	73.8	51.59	16-09-17
mm	HI 13	0.842105263	18.13	79.04	57.54	16-09-17
dm	HI 12	0.782608696	16.31	79.01	73.68	16-09-17
dd	HI 13	0.052631579	5.5	53.78	64.5	16-09-17
mm	HI 13	0.947368421	10.87	67.91	59.4	16-09-17
dd	HI 13	0.684210526	17.88	81.9	80.82	16-09-17
mm	HI 12	0.826086957	20.71	91.6	79.56	16-09-17
mm	HI 12	0.869565217	13.8	76.45	73.74	16-09-17
mm	HI 13	0.947368421	15.35	77.39	80.3	16-09-17
mm	HI 13	0.842105263	18.96	85.31	74.68	16-09-17
mm	HI 12	0.826086957	11.48	75.92	75.35	16-09-17
dd	HI 12	0.913043478	16.61	80.85	78.89	16-09-17
mm	HI 13	0.842105263	8.89	69.46	66.28	16-09-17
mm	HI 12	1	6.22	56.63	48.94	16-09-17
mm	HI 12	0.130434783	9.3	67.17	73.86	16-09-17
mm	HI 13	0.947368421	17.39	81.37	72.45	16-09-17
mm	HI 12	0.956521739	17.64	87.07	71.68	16-09-17
mm	HI 12	0.956521739	14.01	77.38	68.59	16-09-17
mm	HI 12	0.956521739	9.69	65.32	62.24	16-09-17
mm	HI 12	0.941176471	13.61	74.75	67.98	16-09-17
mm	HI 12	0.826086957	8.99	67.68	62.82	16-09-17
dm	HI 12	0.826086957	13.35	71.54	65.65	16-09-17
NA	HI 6	1	8.65	63.38	64.29	16-09-17

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dd	HI 12	0.695652174	9.57	64.3	57.78	16-09-17
mm	HI 12	0.826086957	15.58	75.52	70.29	16-09-17
mm	HI 12	0.695652174	10.88	66.45	61.02	16-09-17
mm	HI 8	0.25	5.32	52.82	59.54	16-09-17
dd	HI 9	0.142857143	8.38	66.85	86.57	16-09-17
dd	HI 10	0.15	9.38	60.92	74.21	16-09-17
dm	HI 9	0.888888889	13.56	72.16	58.9	16-09-17
dm	HI 6	0.083333333	16.78	80.95	84.11	17-09-17
dd	HI 6	0	13.1	74.57	84.07	17-09-17
dd	HI 6	0	16.02	81.75	86.88	17-09-17
NA	HI 6	0.272727273	3.65	NA	NA	17-09-17
mm	HI 12	0.695652174	12.73	82	70	27-09-20
dm	HI 12	0.695652174	13.5	78	71	27-09-20
dm	HI 13	0.157894737	14.26	80	79	27-09-20
mm	HI 12	0.826086957	19.04	83	76	24-10-17
mm	HI 13	0.736842105	15.936	82	79	24-10-17
mm	HI 12	0.666666667	7.357	60	59	24-10-17
mm	HI 13	0.315789474	17.045	75	89	24-10-17
mm	HI 10	0.45	20.143	85	85	24-10-17
mm	HI 12	0.391304348	12.845	71	76	24-10-17
dd	HI 11	0.227272727	15.129	81	80	24-10-17
mm	HI 13	0.421052632	12.405	72	79	24-10-17
dd	HI 14	0	NA	NA	NA	NA
dd	HI 13	0	NA	NA	NA	NA
dd	HI 13	0.08	NA	NA	NA	NA
dd	HI 14	0	NA	NA	NA	NA
dd	HI 14	0	NA	NA	NA	NA
dd	HI 12	0	NA	NA	NA	NA
dd	HI 13	0.04	NA	NA	NA	NA
dd	HI 14	0	NA	NA	NA	NA
dd	HI 14	0.1	NA	NA	NA	NA
dd	HI 12	0.086956522	NA	NA	NA	NA
dd	HI 13	0.08	NA	NA	NA	NA
dd	HI 14	0	NA	NA	NA	NA
dd	HI 14	0.05	NA	NA	NA	NA
dd	HI 13	0	NA	NA	NA	NA
dd	HI 13	0.16	NA	NA	NA	NA
dd	HI 14	0	NA	NA	NA	NA
dd	HI 14	0.1	NA	NA	NA	NA
dd	HI 13	0	NA	NA	NA	NA
dd	HI 13	0	NA	NA	NA	NA
dd	HI 14	0	NA	NA	NA	NA
dd	HI 14	0	NA	NA	NA	NA
dd	HI 14	0.15	NA	NA	NA	NA
dd	HI 14	0	NA	NA	NA	NA
dd	HI 13	0.04	NA	NA	NA	NA
dd	HI 14	0.05	NA	NA	NA	NA
dd	HI 14	0	NA	NA	NA	NA
mm	HI 13	0.8	NA	NA	NA	NA
mm	HI 13	0.84	NA	NA	NA	NA
mm	HI 14	0.8	NA	NA	NA	NA
mm	HI 14	0.2	NA	NA	NA	NA
dd	HI 14	0	NA	NA	NA	NA
dd	HI 13	0	NA	NA	NA	NA
dd	HI 13	0	NA	NA	NA	NA

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mm	HI 13	0.833333333	NA	NA	NA	NA
dm	HI 14	0.85	NA	NA	NA	NA
mm	HI 13	0.88	NA	NA	NA	NA
mm	HI 13	0.88	NA	NA	NA	NA
mm	HI 14	0.9	NA	NA	NA	NA
dd	HI 14	0.05	NA	NA	NA	NA
mm	HI 13	0.88	NA	NA	NA	NA
mm	HI 13	0.96	NA	NA	NA	NA
dd	HI 14	0.1	NA	NA	NA	NA
dd	HI 14	0.05	NA	NA	NA	NA
mm	HI 13	0.88	NA	NA	NA	NA
mm	HI 13	0.92	NA	NA	NA	NA
dd	HI 13	0	NA	NA	NA	NA
NA	NA	0.5	NA	NA	NA	NA
dd	HI 13	0.08	NA	NA	NA	NA
dd	HI 13	0	NA	NA	NA	NA
mm	HI 13	0.96	NA	NA	NA	NA
dm	HI 13	0.88	NA	NA	NA	NA
dd	HI 13	0	NA	NA	NA	NA
dd	HI 12	0.695652174	NA	NA	NA	NA
dd	HI 13	0.8	NA	NA	NA	NA
dd	HI 14	0.7	NA	NA	NA	NA
mm	HI 13	1	NA	NA	NA	NA
mm	HI 14	0.9	NA	NA	NA	NA
dd	HI 13	0.76	NA	NA	NA	NA
dd	HI 13	0.76	NA	NA	NA	NA
dd	HI 13	0.2	NA	NA	NA	NA
mm	HI 13	0.92	NA	NA	NA	NA
mm	HI 13	0.92	NA	NA	NA	NA
dd	HI 13	0.72	NA	NA	NA	NA
dd	HI 13	0.84	NA	NA	NA	NA
dd	HI 14	0.75	NA	NA	NA	NA
dd	HI 14	0.75	NA	NA	NA	NA
dd	HI 10	0.842105263	NA	NA	NA	NA
dd	HI 13	0.76	NA	NA	NA	NA
dd	HI 14	0	NA	NA	NA	NA
dd	HI 14	0	NA	NA	NA	NA
dd	HI 13	0	NA	NA	NA	NA
dm	HI 13	0.2	NA	NA	NA	NA
NA	HI 8	0	NA	NA	NA	NA
dm	HI 14	0.85	NA	NA	NA	NA
dd	HI 13	0	NA	NA	NA	NA
mm	HI 14	0.9	NA	NA	NA	NA
dd	HI 13	0	NA	NA	NA	NA
mm	HI 13	0.4	NA	NA	NA	NA
mm	HI 14	0.85	NA	NA	NA	NA
NA	HI 7	0.846153846	NA	NA	NA	NA
mm	HI 13	0.92	NA	NA	NA	NA
mm	HI 14	1	NA	NA	NA	NA
mm	HI 14	0.95	NA	NA	NA	NA
mm	HI 13	0.92	NA	NA	NA	NA
mm	HI 13	1	NA	NA	NA	NA
mm	HI 14	0.95	NA	NA	NA	NA
dm	HI 13	0.84	NA	NA	NA	NA
mm	HI 13	0.944444444	6.52	55.8	54.8	NA

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dd	HI 13	0.76	19.02	86.9	76.9	NA
dd	HI 14	0.8	16.32	80.7	79.4	NA
dd	HI 13	0.76	13.91	73.9	77.6	NA
mm	HI 14	0.85	16.25	76.2	77.1	NA
dd	HI 14	0.85	13.53	71.6	70.3	NA
dd	HI 13	0	24.14	87.8	93.5	NA
mm	HI 14	0.7	10.91	67.6	61.9	NA
dd	HI 13	0.04	14.56	77.4	82.4	NA
mm	HI 13	0.84	15.63	76.6	81.6	NA
mm	HI 13	0.84	12.71	73.1	76.9	NA
mm	HI 13	0.88	14.67	74.5	NA	NA
dd	HI 14	0.5	16.53	76	70.1	NA
mm	HI 14	0.85	20.46	84	73.4	NA
mm	HI 13	0.88	17.81	85	75	NA
mm	HI 13	0.8	18.26	89.2	77.9	NA
dd	HI 14	0	16.11	75.8	86.3	NA
mm	HI 13	0.84	19.03	86.5	83.9	NA
dd	HI 13	0.88	8.64	61.2	63.1	NA
mm	HI 14	0.9	9.8	63.8	67.7	NA
mm	HI 14	0.9	15.96	78.8	78.2	NA
mm	HI 13	0.88	16.36	78.8	76.3	NA
dm	HI 13	0.8	12.32	70.6	61.9	NA
mm	HI 14	0.85	20.82	83.8	NA	NA
NA	HI 13	0.888888889	10.44	NA	NA	NA
mm	HI 13	0.84	19.35	90.8	84.2	NA
mm	HI 13	0.92	15.64	78.1	72.5	NA
mm	HI 13	0.92	19.07	87.7	77.4	NA
NA	HI 12	0.739130435	16.13	81.7	80.3	NA
NA	HI 12	0.956521739	16.72	75.6	70.3	NA
dd	HI 14	0.8	18.95	84	81.7	NA
dd	HI 14	0.05	18.88	79.1	85.1	NA
dd	HI 14	0	15.29	75.9	85.3	NA
dd	HI 13	0.04	17.74	80.2	83.6	NA
dd	HI 13	0	23.24	90.2	84	NA
dd	HI 14	0	16.48	77.8	86.9	NA
dd	HI 14	0	13.49	72.8	79.1	NA
dd	HI 13	0	21.34	84.2	79.8	NA
dd	HI 13	0.04	20.81	85.6	81.5	NA
dd	HI 14	0.05	20.37	81.5	78.1	NA
dd	HI 14	0.05	16.26	77.4	86.1	NA
dd	HI 13	0	11.94	66.1	75.8	NA
dd	HI 14	0	20.84	81.4	93.2	NA
dm	HI 14	0.5	15.75	80.4	76.6	NA
dd	HI 14	0.85	16.99	78.7	75.8	NA
mm	HI 13	0.88	17.33	86	81.2	NA
dd	HI 13	0.88	13.07	74	70.8	NA
mm	HI 13	0.894736842	15.88	77	77.5	NA
mm	HI 14	0.9	19.17	80.9	78.6	NA
mm	HI 13	0.88	14.86	78	78	NA
mm	HI 13	0.8	16.18	79.7	77	NA
mm	HI 14	0.85	17.65	85.8	81.6	NA
mm	HI 14	0.9	15.22	76	72	NA
mm	HI 13	0.76	17.25	81.3	NA	NA
mm	HI 11	0.857142857	16.17	80.3	74	NA
mm	HI 14	0.85	12.4	70.2	62.9	NA

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mm	HI 14	0.9	16.32	82.8	75.5	NA
mm	HI 13	0.8	13.42	77.3	77.1	NA
dd	HI 13	0.8	7.83	62.9	63.9	NA
dd	HI 13	0	13.94	72.4	83.1	NA
dd	HI 14	0.1	15.18	76.4	87.7	NA
mm	HI 13	0.32	13.48	73.7	83.3	NA
dd	HI 13	0.08	18.6	83.5	98.4	NA
NA	HI 7	0	NA	NA	NA	NA
NA	HI 7	0	NA	NA	NA	NA
NA	HI 7	0	NA	NA	NA	NA
NA	HI 7	0	NA	NA	NA	NA
NA	HI 7	0.142857143	NA	NA	NA	NA
	HI 7	0	NA	NA	NA	NA
	HI 7	0	NA	NA	NA	NA
	HI 7	0	NA	NA	NA	NA
	HI 7	0	NA	NA	NA	NA
	HI 8	0	NA	NA	NA	NA
dd	HI 14	0.1	19.37	81.8	75.5	NA
dd	HI 14	0.1	17.3	81.4	89.1	NA
mm	HI 13	0.16	16.42	76.4	94	NA
dd	HI 12	0.086956522	17.72	83	NA	NA
dd	HI 14	0.2	17.89	82.2	84.2	NA
mm	HI 14	0.9	13.7	77.9	72.4	NA
mm	HI 13	0.92	12.26	76.3	70.8	NA
mm	HI 13	0.96	10.3	72.4	65	NA
mm	HI 13	0.88	16.94	80.1	77.9	NA
mm	HI 14	0.95	14.59	80.3	60.7	NA
dd	HI 14	0.8	15.35	81.6	72.2	NA
mm	HI 13	0.88	19.3	90.6	77	NA
mm	HI 12	0.826086957	10.4	82.5	NA	NA
mm	HI 14	0.9	13.2	73.8	69.4	NA
dd	HI 13	0	23.4	89.5	91.5	NA
dd	HI 13	0	17.66	83.7	85.2	NA
dd	HI 13	0.08	19.3	84.8	83.3	NA
dd	HI 13	0.08	9.92	62.3	73.7	NA
dd	HI 13	0	19.94	86.7	89.2	NA
dd	HI 11	0.529411765	17.12	78.9	73.8	NA
dd	HI 13	0.08	18.52	83.2	83.6	NA
mm	HI 13	0.84	15.81	81.3	74.9	NA
mm	HI 13	0.88	11.85	75	73	NA
mm	HI 14	0.9	16.23	83	73.8	NA
mm	HI 14	0.6	17.1	79.5	70.3	NA
mm	HI 13	0.76	22.6	88.6	76.6	NA
mm	HI 14	0.85	16.79	73.3	61.7	NA
mm	HI 14	0.9	15.55	82.3	74.3	NA
dd	HI 14	0.7	14.34	80.8	74.9	NA
mm	HI 14	0.2	13.88	78.2	75.3	NA
dm	HI 14	0.75	10.66	68	63.2	NA
mm	HI 14	0.9	19.35	86.6	79.4	NA
dd	HI 14	0.15	21.82	86.8	91.2	NA
mm	HI 13	0.88	17.39	86	80.2	NA
mm	HI 14	0.9	18.02	80	78.6	NA
mm	HI 14	0.9	12.83	75.8	73.6	NA
dd	HI 14	0.55	13.05	75.8	79.7	NA
mm	HI 13	0.88	15.51	77.3	78	NA

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dd	HI 13	0.72	25.17	88.6	82.8	NA
dd	HI 14	0.85	14.55	73.8	75.8	NA
dd	HI 14	0	20.52	84.3	87.2	NA
dd	HI 13	0	14.74	80.3	89.1	NA
dd	HI 14	0	17.06	81.1	94.4	NA
dd	HI 13	0	17.15	83.6	87.1	NA
dd	HI 14	0	19.61	84.3	85.7	NA
dd	HI 14	0	13.34	71.7	79.2	NA
dd	HI 13	0.08	17.37	74.2	78.5	NA
dd	HI 13	0	20.12	83.7	87.5	NA
dd	HI 13	0	10.53	67.8	69.2	NA
dd	HI 14	0	13.12	66.5	74.5	NA
dd	HI 13	0	13.04	73.2	75.4	NA
dd	HI 13	0	17.36	76.8	91	NA
dd	HI 13	0	17.89	86	90.9	NA
dd	HI 14	0.1	15.05	76.7	87.3	NA
dd	HI 13	0.16	15.65	79.9	87.8	NA
dd	HI 13	0	12.49	72	NA	NA
dd	HI 14	0	22.95	91.2	91.3	NA
dd	HI 14	0	22.33	87.8	95.3	NA
dd	HI 13	0	18.21	NA	NA	NA
NA	HI 12	0.956521739	NA	NA	NA	NA
NA	HI 11	0.928571429	NA	NA	NA	NA
NA	HI 12	0.9375	NA	NA	NA	NA
NA	HI 11	0.933333333	NA	NA	NA	NA
NA	HI 13	0.944444444	NA	NA	NA	NA
NA	HI 13	0.944444444	NA	NA	NA	NA
mm	HI 13	0.84	19.12	84.3	78.3	NA
dd	HI 13	0.736842105	19.28	76.2	84.7	NA
mm	HI 13	1	8.72	58.4	63.9	NA
dd	HI 14	0.75	21.55	88.4	74.3	NA
mm	HI 14	0.95	7.85	57.2	63.6	NA
mm	HI 13	0.8	6.27	50.8	58.1	NA
mm	HI 13	0.92	7.59	54.4	67.3	NA
mm	HI 14	0.9	18.15	63.7	77.1	NA
dd	HI 13	0.8	14.03	72.7	74.4	NA
mm	HI 14	0.9	16.02	73.6	76.7	NA
mm	HI 12	0.869565217	16.2	75	78.4	NA
mm	HI 14	0.9	15.12	72.5	74.9	NA
dd	HI 13	0.76	16.92	81.4	84.3	NA
dd	HI 13	0.04	25.15	87.2	85.7	NA
dd	HI 13	0.12	8.8	58.4	78.3	NA
mm	HI 13	0.8	8.42	60.7	62.3	NA
mm	HI 13	0.88	17.23	80.6	NA	NA
dd	HI 13	0.12	12.59	70.3	77.5	NA
dd	HI 8	0.8	14.26	75.7	73.7	NA
dd	HI 13	0.08	11.2	65.3	77.1	NA
dd	HI 14	0.75	12.15	71.2	74.4	NA
dd	HI 13	0.76	15.93	80.9	79.4	NA
dd	HI 13	0	15.5	80.7	78.5	NA
dd	HI 13	0.12	14.7	73.2	85.4	NA
dd	HI 8	0	NA	NA	NA	NA
mm	HI 10	0.25	NA	NA	NA	NA
dd	HI 9	0.111111111	NA	NA	NA	NA
mm	HI 8	0.25	NA	NA	NA	NA

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NA	HI 13	0.315789474	NA	NA	NA	NA

Supplementary table S1

Aspiculuris_Syphacia	delta_ct_ilwe_MminusE	delta_ct_cewe_MminusE
4	-6.64	-9.3
1	-10.25333333	-9.563333333
4	-10.57666667	-10.45333333
15	-11.04666667	-10.22
8	-9.56	-9.613333333
4	-9.946666667	-10.19
338	-8.743333333	-0.27
26	-1.556666667	-7.136666667
0	-8.603333333	-9.023333333
8	-8.076666667	-9.246666667
0	-9.033333333	-9.253333333
0	-8.816666667	-8.903333333
0	-8.89	-10.00666667
0	-9.34	-8.563333333
15	-9.6	-8.886666667
44	-8.366666667	-8.006666667
5	-8.796666667	-7.97
1	-11.11	-2.13
0	-9.013333333	-2.216666667
0	-10.47	-2.58
1	-8.52	-3.593333333
0	-4.16	-1.15
1	-17.67	-3.84
9	-3.57	-3.94
0	-8.746666667	-7.7
0	-8.16	-7.336666667
1	-9.033333333	-7.153333333
17	-10.97666667	-10.63
9	-10.90666667	-10.14
2	-11.28666667	-7.603333333
0	-11.74666667	-9.793333333
26	-11.31666667	-10.64333333
3	-11.06333333	2.9
3	4.75	0.42
1	-10.69333333	-6.813333333
1	-10.59	-0.353333333
4	-10.90666667	-8.263333333
3	-11.28666667	-9.736666667
0	-11	-9.716666667
10	-11.43333333	-9.77
1	-10.73333333	-10.62666667
19	-5.42	-2.34
0	-11.2	-10.37
3	-11.17333333	-9.533333333
32	-9.996666667	-9.853333333
22	-10.79666667	-8.903333333
3	-10.33	-9.483333333
8	-10.52666667	0.943333333
0	-10.63333333	-5.836666667
10	-11.23333333	-9.706666667
0	-10.96	-9.9
3	-11.03333333	-10.43333333
0	-10.27333333	-9.893333333
7	NA	1.96

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1	-10.83666667	-9.546666667
0	-10.79333333	-10.28666667
172	-11.24666667	-9.9
73	-11.03333333	-10.58666667
2	-9.115	-9.703333333
0	-8.626666667	-8.456666667
489	-9.833333333	-8.933333333
85	-9.756666667	-8.83
76	-9.61	-8.076666667
2	-10.25	-8.636666667
0	1.93	-0.696666667
0	-5.933333333	-0.076666667
28	-8.716666667	-1.45
22	-8.616666667	-5.393333333
9	-8.51	-8.026666667
0	NA	NA
16	-8.76	-8.726666667
225	-9.753333333	-9.17
3	-5.016666667	-8.583333333
117	-8.876666667	-2.77
51	-9.646666667	-3.126666667
116	-9.89	-9.24
2	-9.506666667	-8.686666667
7	-9.72	-9.213333333
0	-9.803333333	-7.893333333
0	-9.88	-9.433333333
8	-8.906666667	-9.033333333
5	-8.773333333	-9.213333333
80	-8.88	-9.53
0	-9.4	-8.546666667
0	-9.21	-9.18
0	-8.766666667	-8.97
1	-9.04	-9.303333333
0	-9.05	-9.143333333
0	-8.593333333	-8.84
0	-8.506666667	-8.693333333
0	-9.17	-8.59
55	-9.15	-8.21
0	2.606666667	-1.903333333
78	-2.59	4.39
0	-9.253333333	-8.706666667
180	-9.313333333	-8.543333333
13	-9.413333333	-6.533333333
38	-8.48	-9.25
0	-8.61	-8.37
0	-9.006666667	-9
0	-7.983333333	-8.783333333
0	-9.12	-8.376666667
10	-8.526666667	-9.183333333
0	-9.596666667	-8.536666667
0	-8.603333333	-8.62
4	-8.973333333	-8.89
0	-9.446666667	-8.923333333
7	-8.383333333	-8.026666667
0	-9.51	-8.196666667

Supplementary table S1

0	-9.993333333	-9.763333333
4	-8.143333333	-8.586666667
0	-9.026666667	-8.42
0	-9.26	-8.866666667
0	-9.073333333	-8.583333333
3	-8.286666667	-8.82
0	-9.18	-8.663333333
0	-8.626666667	-9.016666667
0	-8.806666667	-7.843333333
0	-8.973333333	-2.253333333
4	-9.846666667	-8.21
28	-8.72	-4.686666667
18	-8.556666667	-3.35
4	-8.24	-4.833333333
9	-8.683333333	-8.896666667
2	-8.736666667	-9.1
34	-9.263333333	-8.133333333
66	-8.26	1.13
46	-7.436666667	-7.516666667
5	-8.56	-2.896666667
3	-8.873333333	-4.773333333
0	-9.216666667	-8.29
0	-8.086666667	-8.626666667
0	-9.173333333	-6.196666667
0	-7.826666667	-9.43
5	-9.186666667	-8.85
0	-9.253333333	-9.036666667
41	-10.13333333	-8.956666667
70	-9.446666667	-6.073333333
13	-8.746666667	-8.966666667
0	-8.403333333	-7.82
0	-9.14	-8.75
10	-8.816666667	-8.013333333
38	-9.383333333	-7.533333333
4	-8.473333333	-3.076666667
0	-8.836666667	-8.353333333
1	-8.206666667	-7.423333333
26	-9.306666667	-8.446666667
1	-8.083333333	-7.783333333
28	-8.976666667	-6.601666667
0	-8.786666667	-6.173333333
37	-8.496666667	-8.713333333
0	-9.11	-8.12
65	-9.093333333	-8.423333333
0	-8.06	-7.08
0	-8.53	-8.62
2	-8.03	-8.483333333
8	-8.833333333	-8.743333333
37	3.316666667	-8.313333333
0	-8.913333333	-8.98
7	-8.76	-7.683333333
76	-9.243333333	-8.69
5	-9.256666667	-8.403333333
0	-7.966666667	-7.463333333
12	-8.88	-8.35

Supplementary table S1

114	-8.6	-8.753333333
0	-10.62	-4.82
0	-8.225	-10.57
0	-12.86	-8.425
0	-10.775	-10.985
75	-13.155	-11.195
0	-10.56	-15.45
5	-8.23	-2.375
26	-1.38	-2.6
21	3.7	-4.58
0	0.08	-9.895
10	-0.655	-8.31
0	-0.94	-6.685
0	-0.725	-8.755
0	-0.525	-5.87
20	-10.59	-11.06
7	-10.95	-8.63
NA	NA	NA
NA	NA	NA
40	-11.855	-8.53
0	-10.19	-10.86
0	-11.13	-1.61
6	-11.15	-11.44
1	-10.08	-4.55
9	-12.09	-7.17
0	-10.55	-4.21
20	-10.63	-12.03
8	-10.96	-8.7
0	-9.77	-12.19
0	-11.04	-12.13
NA	NA	NA
0	-12.47	-12.575
12	-12.38	-7.48
0	-5	-12.74
85	-19.31	-12.53
0	-14.21	-12.26
0	-13.8	-13.64
0	-12.08	-5
0	-15.48	-11.23
0	-12.02	-14.61
0	-12.97333333	-12.7
0	-14.01	-12.74666667
0	-12.49333333	-11.44
0	-13.355	-12.25333333
0	-12.4	-12.40333333
0	-15.11666667	-10.61666667
0	-12.96666667	-11.33
0	-5	-5
0	-5	-5
0	-5	-5
0	-5	-14.1
0	-5	-5
3	-11.42	-13.59
0	-5	-12.34333333
0	-14.38	-15.91

Supplementary table S1

0	-5	-12.8
0	-5	-12.81
NA	NA	NA
NA	-12.95	NA
NA	NA	NA
0	-11.82	-3.435
0	-11.84	NA
18	-5	-4.73
5	-12.96	-11.1
0	-11.95	-11.46
0	-12.72	-3.736666667
0	-11.18	-14.33
137	-12.55	-2.07
4	-14.87	-11.04
NA	NA	NA
NA	NA	NA
0	-13.04	-10.85
17	-11.54	-10.99
43	-14.1	-10.51
1	-13.5	-6.32
56	-6.46	NA
13	-12.715	-9.21
135	-15.48	-15.6
260	-11.56	-11.41
5	-17.9	-12.09
17	-10.9	-2.82
0	-14.8	-14.33
6	-6.59	-3.06
18	-14.21	-6.98
76	-5	-5
0	NA	-7.82
0	NA	-11.29
37	-10.05	-8.73
1	-13.34	-12.66
0	-17.93	-3.605
83	-14.35	-10.99
7	-5	-6.98
2	-12.97	-10.93
18	-13.78	-13.61
0	-12.17	-7.13
0	NA	-12.05
4	NA	-11.63
226	NA	-9.42
13	NA	-9.93
67	-14.67	-12.48
0	NA	-10.985
0	-5	-11.02
70	-11.31	NA
181	-13.03	-13.45
0	-12.45	-15.57
137	-11.06	-14.46
9	-11.48	-11.31
9	NA	-9.76
67	-10.91	-9.67
0	-10.295	-11.99333333

Supplementary table S1

	0	-12.155	-10.785
	0	-12.69	-7.83
	52	-11.01	-10.7
	0	-11.55	-10.955
	9	-12.9	-4.945
	0	-11.8	-12.83
	27	-11.685	-11.77
	0	-11.19	-5.68
	37	-9.72	-12.66
	11	-18.175	-13.75333333
	0	-10.93	-7.42
	7	-13.765	-8
	0	-11.78	-13.1
	54	-15.11	-10.72
	0	-13.16	-13.27
	0	-7.275	-12.38
	0	-16.69	-13.48
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NA		NA	NA
NA		NA	NA
NA		NA	NA
	0	-15.76	-11.85
	0	-4.9	-11.76
	0	-14.48	-12.04
	5	-12.105	-8.633333333
	57	-12.155	-11.425
	8	-13.98	-12.48
	0	-12.52	-11.91
	2	-12.96	-11.46
	6	-13.83	-5.15
	4	-5	-6.88
	3	-5	-12.34
	0	-5	-10.3
	21	-11.21	-12.145
	2	-12.96	-13.6
	0	-11.625	-8.84
	30	-12	-12.315
	6	NA	-10.235
	19	NA	NA
	0	NA	NA
	0	-10.38	-13.63
	3	-12.4	-12.5
	7	NA	-12.16
	0	-15.19	-14.01
	0	-13.21333333	-10.33
	35	-11.99	-10.27666667
	0	-5	-7.77
	1	-12.33	-9.64
	0	-12.15	-10.32
	6	-11.76	-14.115
	7	-11.655	-11.545
	0	-11.84	-12.765
	23	-11.4775	-4.79
	0	-12.83	-2.355
	0	-13.7	-13.685

Supplementary table S1

16	-13.32	-14.24
118	NA	-9.84
14	-6.02	-10.115
1	-11.28	-7.37
19	-10.74	-12.38
18	-10.36	-14.99
0	-12.82	-11.91
20	-15.23	-0.96
3	-12.02	-11.41
0	-12.83	-9.07
0	-13.185	-7.05
0	-12.48	-6.16
32	-8.34	-2.85
0	-12.83	-14.13
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NA	NA	NA
NA	NA	NA
NA	NA	NA
NA	NA	NA
NA	NA	NA
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0	-7.25	-4.555
3	-13.22	-7.375
4	-9.26	-19.26
11	-10.89	-6.13
9	-6.3	-1.13
34	-9.88	-2.495
10	-11.51	-7.96
0	-8.47	-4.985
0	-8.91	-3.68
NA	NA	NA
2	-7.3	-4.935
56	-11.53	-5.37
0	-2.64	-1.175
4	-12.08	-12.24
0	-13.41	-10.39
0	-11.89	NA
0	-12.61	-5
0	-5	-5.68
43	-12.59	-11.57
0	-11.89	-10.46
0	-15.55	-11.52
0	-12.69	-3.17
0	-10.6	-3.53
0	NA	-12.66
2	-12.94	-5
0	-13.21	-14.24
0	-12.78	-10.92
3	5.02	-12.11
2	-11.7	-3.22
0	-10.68	-11.85
0	-10.64	1.33
0	-5.19	-7.88
2	-11.36	-8.83

Supplementary table S1

0	-10.18	-12.03
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0	-12.09	-12.02
0	-10.3	-5
4	-12.97	-11.04
9	-11.11	-10.12
0	-12.25	-12.52
3	-10.58	-2.84
0	-12.67	NA
0	-12.92	-12.03
0	-12.5	NA
0	-5.54	-5
1	-11.54	-5
99	-15.31	-11.02
8	NA	NA
18	-13.96	NA
0	-11	NA
0	-5	NA
1	-14.47	-13.11
39	-15.88	-11.95
35	-13.8	-10.68
93	-8.57	-6.8
5	NA	NA
351	NA	NA
35	NA	NA
15	NA	NA
41	NA	NA
203	NA	NA
12	NA	NA
20	NA	NA
3	NA	NA
0	NA	NA
5	NA	NA
1	NA	NA
0	NA	NA
0	NA	NA
32	NA	NA
201	NA	NA
20	NA	NA
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0	NA	NA
0	NA	NA
0	NA	NA
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27	NA	NA
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0	NA	NA
0	NA	NA

Supplementary table S1

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0	NA	NA
45	NA	NA
5	NA	NA
0	NA	NA
75	NA	NA
1	NA	NA
0	NA	NA
235	NA	NA
57	NA	NA
236	NA	NA
7	NA	NA
30	NA	NA
NA	NA	NA
2	NA	NA
17	NA	NA
9	NA	NA
0	NA	NA

Supplementary table S1

0	NA	NA
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20	NA	NA
0	NA	NA
12	NA	NA
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0	NA	NA
0	NA	NA
0	NA	NA
0	NA	NA
0	NA	NA
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6	NA	NA
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0	NA	NA
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0	NA	NA
0	NA	NA
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0	NA	NA
100	NA	NA
9	NA	NA
0	NA	NA
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0	NA	NA
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5	NA	NA
5	NA	NA
25	NA	NA
25	NA	NA
17	NA	NA
1	NA	NA
0	NA	NA
0	NA	NA
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0	NA	NA
0	NA	NA
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9	NA	NA
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0	NA	NA
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48	NA	NA
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Supplementary table S1

	0 NA	NA
	0 NA	NA
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	115 NA	NA
	25 NA	NA
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	0 NA	NA
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	0 NA	NA
	0 NA	NA
	0 NA	NA
	15 NA	NA
	4 NA	NA
	0 NA	NA
	30 NA	NA
	68 NA	NA
	0 NA	NA
	16 NA	NA
	0 NA	NA
	45 NA	NA
	93 NA	NA
	17 NA	NA
	0 NA	NA
	25 NA	NA
	0 NA	NA
	5 NA	NA
	0 NA	NA
	0 NA	NA
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	0 NA	NA
	4 NA	NA
	0 NA	NA
	56 NA	NA
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	58 NA	NA
	0 NA	NA
	0 NA	NA
	8 NA	NA
	0 NA	NA

Supplementary table S1

	8	NA	NA
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NA		NA	NA
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NA		NA	NA

Supplementary table S1

NA	NA	NA

Weibull distribution	Alpha (hybridization effect) (♀)	P-value (alpha vs no alpha) (♀)	Alpha (hybridization effect) ♂	P-value (alpha vs no alpha) ♂	L1 (load Mmd) (♀)	L1 (load Mmd) ♂	L2 (load Mmm) (♀)	L2 (load Mmm) ♂	S (shape) (♀)	S (shape) ♂	G-test vs H0			G-test vs H1			G-test vs H2		
Eimeria intensity											dLL	dDF	p-value	dLL	dDF	p-value	dLL	dDF	p-value
H0	**0.74**	**0.02**			**-0.70**				**2.33**										
H1	0.85	0.01			-1.01		0.10		2.38		0.65	1	0.26						
H2	0.79	0.03	0.67	0.38	-0.35	-1.10			2.39	2.27	0.30	3	0.89						
H3	0.92	0.01	0.73	0.36	-0.88	-1.18	0.86	-0.79	2.48	2.28				0.49	4	0.91	0.83	2	0.43

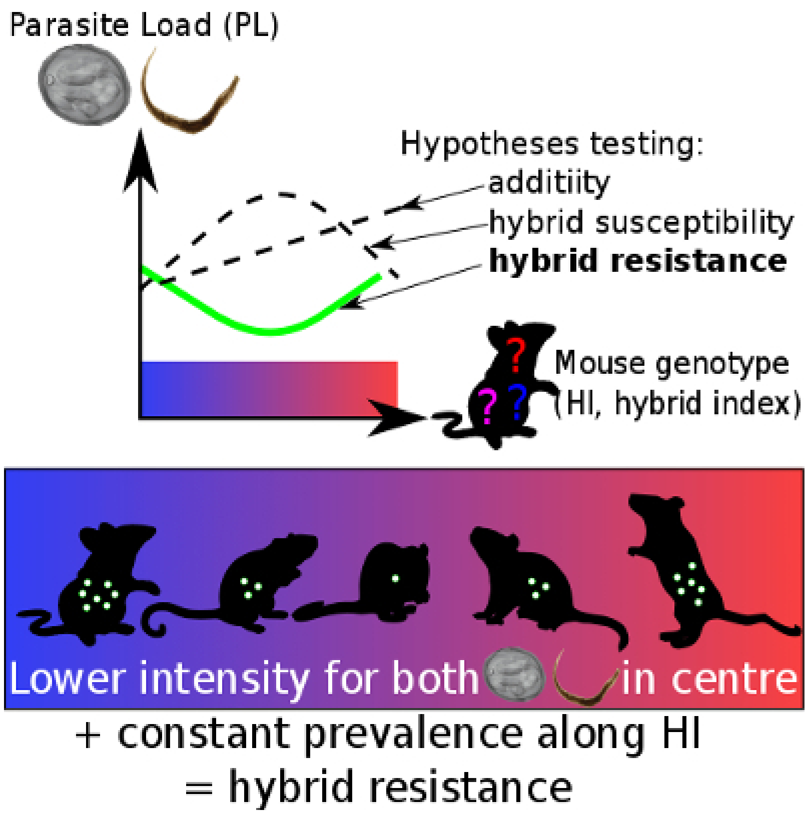
Negative binomial distribution	Alpha (hybridization effect) (♀)	P-value (alpha vs no alpha) (♀)	Alpha (hybridization effect) ♂	P-value (alpha vs no alpha) ♂	L1 (load Mmd) (♀)	L1 (load Mmd) ♂	L2 (load Mmm) (♀)	L2 (load Mmm) ♂	A1 (aggregation Mmd) (♀)	A1 (aggregation Mmd) ♂	A2 (aggregation Mmm) (♀)	A2 (aggregation Mmm) ♂	Z (♀) (Deviation of aggregation from additive model)	Z ♂ (Deviation of aggregation from additive model)	G-test vs H0			G-test vs H1			G-test vs H2		
Pinworm intensity															dLL	dDF	p-value	dLL	dDF	p-value	dLL	dDF	p-value
H0	0.91	0.01			44.46				1.78				-0.90										
H1	1.11	< 0.001			32.12		61.95		1.75		1.68		-0.77		5.56	2	<0.01						
H2	0.64	0.22	1.39	< 0.01	49.76	39.60			1.72	1.88			-0.73	-1.79	7.72	4	<0.01						
H3	**0.91**	**0.04**	**1.46**	**< 0.001**	**35.57**	**30.38**	**68.67**	**51.84**	**1.45**	**2.10**	**2.00**	**1.33**	**-1.04**	**-1.23**				9.01	6	<0.01	6.85	4	<0.01

Additional files

Supporting information

Supplementary Table S1. Hybrid indexes, georeference and parasite load for each individual

Supplementary Table S2. Full parametrisation of the fitted models and comparison by G-test of the four nested hypotheses. H0: same expected load for the subspecies and between sexes; H1: same expected load across sexes, but can differ across subspecies; H2: same expected load across subspecies, but can differ between the sexes; H3: expected load can differ both across subspecies and between sexes.



141x141mm (72 x 72 DPI)