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Appendix A from Y. Jiang et al., "Assortative Mating in Animals"

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Search Methods and Trait Categories

Assortative mating has been studied throughout the history of evolutionary biology. Consequently, a very large body of literature has accumulated on the subject. As of November 10, 2011, a Google Scholar search returned 327,000 and 174,000 publications containing the phrases "non random mating" and "non random pairing," respectively, in their main text or references; 29,700 and 14,800 publications contained "assortative mating" and "assortative pairing," respectively. However, only a small number of these matches are relevant to our study, in the sense of providing quantitative measures of assortative mating within a single conspecific population.

We employed a three-step search strategy to generate a representative and sufficient data set for the meta-analysis:

Step 1: We first went through a complete list of all literature containing the words "assortative mating" or "disassortative mating" in their title, as identified by title searches in Google Scholar, JSTOR, and Web of Science.

Step 2: We conducted keyword searches for articles whose full text contains at least one of the listed combinations of keywords using Google Scholar in the subject areas of biology, life sciences, and environmental science. The full list of keywords is given in table A1. Whenever possible, we also search for antonyms of search terms in order to reduce the possibility of bias toward either positive or negative results. Note that although some authors may distinguish assortative pairing from assortative mating in a way that the previous does not necessarily result in procreation, most authors use these two terms as semantics. Thus, we did not attempt to distinguish these two terms in our database because of insufficient information.

Step 3: We noted potentially relevant citations from the text of articles we read on the basis of descriptions in text and titles in the citation section. To reduce publication bias arising from the possibility that prominent journals may favor significant results, we were careful to survey journals regardless of their stature. We were also careful not to restrict the year of publication: some publications in our database date back as far as 1906, although most of the references in our database were published after 1970.

Our most recent search was conducted on November 10, 2011. Table A1 reports the number of relevant publications returned by search engines for different search terms. Table A2 shows how traits were classified into trait categories.

Table A1. Keyword combinations used in literature search and the number of relevant publications identified

Keyword combination	No. publications
"Assortative pairing" and "correlation"	282
"Assortative pairing" and "coefficient of correlation	4
"Assortative pairing" and "correlation coefficient"	51
"Disassortative pairing"	562
"Disassortative pairing" and "correlation"	15
"Disassortative pairing" and "coefficient of correlation"	4
"Disassortative pairing" and "correlation coefficient"	51
"Disassortative mating" and "correlation"	370
"Disassortative mating" and "correlation coefficient"	44
"Disassortative mating" and "coefficient of correlation"	2
"Assortative mating" and "correlation"	5,070
"Assortative mating" and "coefficient of correlation"	56
"Assortative mating" and "correlation coefficient"	687
"Amplexus size assortative"	223
"Amplexus size disassortative"	6

Table A2. Trait categories used in the meta-analysis, with the specific traits included in each category

Category	Traits included
Age	Age
Behavior	Feeding rate
Chemical	Pheromone, pheromone response, triiodothyronine (an avian thyroid hormone; T3), testosterone
Condition	Condition, ectoparasite loads, hematocrit (volume percentage of blood composed of red blood cells), cloacal microbial abundance, molt score, parasite incidence, parasite load, time left to molt, wing wear
Ecotype	Hatching site, ecotype, diet
Genotype	Major histocompatibility complex alleles, heterozygosity
Phenology	Arrival date
Size	Body length, body weight
Structural	Ninth primary length, asymmetric wings incidence, bill depth, bill length, bill size, bill width, chela size, cheliped length, claw size, culmen length, degree of asymmetry between two tail streamers, elytron length, femur length, first primary length, flag area, flipper length, foretibial length, forewing length, gape length, gonys length, head length, head width, head-bill length, longest tail streamer length, lower mandible length, lower mandible width, mouth-opening direction, outer tarsus length, pectoral band, pectoral spots, pronotal width, prosoma width, prothorax width, racket area, rectrix length, second tail streamer length, sternopleural chaeta numbers, tail height, tail length, tarsometatarsus length, tarsus length, thorax length, tibia length, toe length, upper mandible depth, upper mandible length, upper mandible width, wing length
Visual	Bill color, body color, breast stripe width, color morph, color phase, crest size, crown plumage brightness, crown plumage chroma, elytral spot length, head color, immaculateness, long-wave brightness, midwave brightness, ornament, plumage brightness, plumage color, plumage hue, prothorax spot length, prothorax spot width, UV angular breadth (a measure of UV reflectance), UV brightness, UV chroma, UV hue, yellow chroma, yellow hue

Note: See supplementary material (available in Dryad; http://dx.doi.org/10.5061/dryad.r706v) to match each trait to a particular organism and reference. UV, ultraviolet.