

Mate Choice and Pair Bond Formation

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Purple Martins are monogamous birds, meaning that they form pair bonds with a member of the opposite sex for that entire breeding season. In this type of mating system, tasks such as nest building and feeding of young are typically shared by both males and females. Both sexes try to attract the opposite to guarantee the selection of a mate who will increase their fitness, their ability to survive and reproduce. In monogamous species, such as martins, sexual dimorphism, or physical differences between the sexes occurs.

As most of us know, ASY martins are the first to return to their nesting sites in the spring, with SYs returning approximately a month later. This staggered arrival pattern is actually involved in mate choice, the selection of a mate by secondary sex characteristics. Since martins are a monogamous species, not all females can mate with the most attractive male, so those that arrive first have first choice. Adult females tend to pair up with adult males, while sub-adults pair up with other sub-adults. This may not always be the case, but proves true the majority of the time. This is called assortative mating by age class¹. These newly paired mates then form a pair bond, defined as “an extended social and sexual association between a male and female”² that generally lasts the entire breeding season. Martins do not form pair bonds for life, although some species such as the Canada Goose and the Bald Eagle do form life-long pair bonds.

Female birds of many species are very picky when it comes to choosing a mate. They want a male with the best possible genes to pass on to their offspring; this is called the “good genes hypothesis”^{3,4}. Males with the best genes are those that are capable of defending against predators, disease, etc. Females can assess males by observing their territories, plumage, and vocal capabilities. These high-quality pairs will then produce high-quality young, who will be selected for in the future. For martins, females also seek a male with the best housing options available. Optimal housing can help ensure the survival of their young.

Of all the animal species, birds are more prone to forming pair bonds. 90% of all birds are monogamous, whereas only 5% of mammals exhibit monogamy⁵. Unfortunately, those birds that do not form pair bonds with the most “attractive” partner tend to participate in what are called extrapair matings. In this case, females who did not pair with the most attractive male may mate with a higher quality male than the one she is paired with. This could help increase the chances of her offspring getting the characteristics of the “better” male². Males benefit by the fact that their genes could potentially be passed down by this extrapair mating, thus increasing their biological fitness.

I guess you could say that martins are a very superficial group; they choose mates based on how attractive they are! And, to the dismay of many, martins are not always faithful to their partners. However, all the scandal that takes place within these martin colonies helps to make certain that this species survives for all of us to enjoy!



Sometimes monogamous relationships take a lot of work. This particular pair of Purple Martins, photographed by Ron Vasser, were also featured on the front cover of issue 15(2) of the Purple Martin Update.

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3. Gill, Frank B. 1995. *Ornithology*, Second Ed. W.H. Freeman and Company: New York.
4. Merry, Justin W. 1999. Sexual selection in birds. Available online at: <<http://oak.cats.ohiou.edu/~jm703496/es-ssbrd.html>>.
5. Owen, James. 2003. “Love” Birds: Mated for Life but Bound to Cheat?. *National Geographic News*. Available online at: <http://news.nationalgeographic.com/news/2003/02/0214_030214_birddivorce.html>.

