IN A MEADOW
near my house, black-eyed Susans bloom in early summer. I can count on seeing a flock of American goldfinches fly up from the flowers at my approach, the males as bright as the yellow blossoms. I wonder why these birds are so beautiful, so extravagantly colorful. You’d think it would be dangerous for a bird to attract so much attention. Why aren’t they all as drab as dirt?

Ornithologists suggest an explanation that I call the shiny-sports-car theory. We see human males using flashy vehicles to signal to females that they’re rich, exciting, and virile. Maybe something similar is going on with the birds. We know that female house finches go for males with the biggest, reddest patches. And female American goldfinches snap up the yellowest males as mates early in the season, giving them a longer time than dull fellows in which to breed. The pretty males produce more than their share of young and pass along their good looks to the next generation.

Dr. Kevin McGraw, ornithologist with Arizona State University, and others have discovered that female goldfinches have good reasons to pick bright males. They turn out to be the best mates—good providers, who bring plenty of food to the nest.

Most red, orange, and yellow feathers get their color from pigments...
the birds eat in their food. These pigments are carotenoids, the same chemicals that make carrots orange and strawberries red. Dr. McGraw's research shows that healthy, well-fed male goldfinches are able to use their dietary carotenoids to produce bright, saturated-yellow plumage. Sickly or underfed males, however, don't do so well at it, so they look pale or splotchy.

Healthy mates

Besides making colors, carotenoids are also powerful antioxidants, which help birds to resist disease and parasites. A male American goldfinch with deep yellow color is signaling his excellent health. He's advertising that he has a good diet and that he's ready to be a helpful, energetic parent. No wonder the females are drawn to him.

Melanins, which birds produce within their bodies rather than getting from food, are related to hormones, such as testosterone, which affect a bird's aggressiveness and dominance. These are the macho hue, reminiscent of the lustrous black leather outfits that bikers wear. The size and shininess of the black bib on a house sparrow's breast, for example, informs rivals of how tough a competitor he is.

The language of color

Feather colors form a kind of language, communicating specific information among birds of the same species. Although we're only beginning to understand that language, some of its underlying logic is emerging. It makes sense that birds molt into their most vivid plumage for the breeding season. That's when they need to advertise their condition, in order to discourage rivals and attract the best possible mates. The shiny black cap of the American goldfinch, a melanin-based pigment, affects how other males react to him and helps him defend a territory, and his carotenoid-yellow body entices females to mate with him. In the winter, when territory and courtship aren't issues, goldfinches can afford to relax and wear drab, better to escape the notice of predators.

Ornamental plumage has practical functions. Likewise, we know that flowers have evolved colors and shapes to attract the particular insects that pollinate them. But wading through the wildflowers of summer, with the goldfinches all around me, I'm struck by how well these utilitarian qualities correspond with my human sense of beauty. There seems to be kinship between the eye of the human beholder and the goldfinch among the blossoms. Not so surprising, perhaps. Nature, after all, is mother of us all.