



Strut, booby, strut.

Swooping into land, the blue-footed booby flares his wings and settles in front of the ladybird he likes. His heartbeat starts to race as he shows off his wingspan. She seems to like that; she shows her wingspan back. So far, so good. He lifts his neck; she lifts her neck; they clack their beaks together. Looking good, booby. He steps back and lifts his big, blue foot up high to show it off, then puts it down and lifts the other. She looks down her beak at him and takes a step backward, ruffling her feathers. She doesn't look impressed. He tries again, lifting up his foot, and spreading wide his teal-blue webs, then hops to show the other. She ruffles up, then turns away and with a leap and a flap she catches the wind, flying off to find some fish. Dejected, he watches her go, then hangs his head to look down at his feet. What was the matter? Weren't they blue enough?



Yeah, I know, they're pretty blue. Image Credit: Flickr user Paul Krawczuk ([CC BY 2.0](#))

Coloration Provides Clues to Avian Fitness, Evolution, and Behavior

If you're a bird, your color matters. Which also means that color matters to ornithologists, and the heads of the ornithology departments at universities, museums, and zoos. This is because the precise colors of plumage, bills, legs, feet, and eggs can be important indicators of health, diet, and mating suitability for thousands of different avian species.

For instance, researchers can tell the richness of a flamingo's shrimp diet by the vibrancy of their pink plumage. The relative blueness of a booby's feet¹ can make or break their chances of mating. Boobies with paler feet are passed over by more robust mating partners and must settle for less attractive members of the opposite sex to reproduce with. (Sound familiar?) Color can also serve as a surrogate indicator in dominance struggles², which have an indirect influence on mating patterns, and also on diet and nest locations. Color is important for camouflage and avoiding predators as well. That's why peacocks are brightly plumed to attract mates while peahens, who have their pick of the males, are drably colored to hide from raccoons, wild canines, and the occasional leopard or tiger³.



Kinda looks like some of the younger suits downtown. Image Credit: Flickr User Mike Leary ([CC BY 2.0](#))

Spectrophotometers Generate Reliable, Reproducible Avian Color Measurements

However, the relative differences between avian colors can be too slight for the human eye to detect. Differing illumination conditions due to changing weather, latitude, season, and time of day, can cause researchers to subjectively misidentify the actual color of various birds and parts of birds.

This is why spectrophotometers are used to objectively assess avian coloration. By analyzing light reflected from feathers, feet, or eggshells, spectrophotometers can quantize the color of these objects with both precision and accuracy. Equipped with standardized illumination settings, these instruments can also control for the effects of different lighting conditions. As the reproducibility of experiments is essential to their veracity, spectrophotometers are integral to the validity of ornithological research. Even better, the durability and portability of HunterLab's handheld spectrophotometers can handle rugged field conditions. This can come in handy when you're studying birds of paradise in Papua New Guinea or king penguins in the Desolation Islands off the Antarctic coast.⁴



Come and get it. Image Credit: Flickr User size4riggerboots ([CC BY 2.0](#))

Spectrophotometers Improve Ornithology Department Reputations

As those involved in the administration of ornithology departments at universities, zoos, and museums are well aware, science costs money. Each new piece of equipment must justify its expense. In addition to being an instrument capable of collective quantitative measurements, spectrophotometers justify their inclusion in ornithological research by being highly durable. Their long life cycle ensures added and repeated value for many years to come.

In an academic setting, access to such equipment can increase a department's competitiveness in the search for the best and brightest future ornithologists, creating an argument for greater budget allocations from the university at large.

While there aren't nearly as many different types of spectrophotometers as there are avian species, different instruments are best suited for different studies. For information on which spectrophotometer can best aid your research, [contact the experts at HunterLab.](#)

1. "On Galapagos, Revealing the Blue-Footed Booby's True Colors," 2017, <https://www.nytimes.com/2017/03/06/science/galapagos-blue-footed-boobies.html>
2. "The Effects of Life History and Sexual Selection on Male and Female Plumage Coloration," 2015, <https://www.ncbi.nlm.nih.gov/pubmed/26536112>
3. "Do Peacocks Have Any Predators," 2014, <https://www.animalanswers.co.uk/blog/do-peacocks-have-any-predators/>
4. "Penguins Find Each Other's Beaks Sexy," 2015, <http://blogs.discovermagazine.com/inkfish/2015/09/16/penguins-find-each-others-beaks-sexy/#.WMHdUxlrLR3>