



♂ THE ROSE TINTED FUTURE

“The generally accepted rule is pink for the boys, and blue for the girls. The reason is that pink, being a more decided and stronger color, is more suitable for the boy, while blue, which is more delicate and dainty, is prettier for the girl.”

- states a 1918 trade magazine.

In the 1940s, it got switched, likely by the fickle whims of clothing manufacturers. Unfortunately for girls, the designated pink ranks as one of our least favorite colors, down there with lowly yellow and orange, while the dainty blue comes out as our favorite. Assigning arbitrary color schemes aside, another way we're influencing gender norms is through rising mercury in the thermometer: climate change. And this isn't a trend that will switch anytime soon.

Climate change is bringing a warming world, rising seas, stronger hurricanes, and lots of changes to the animal world. Species are shifting towards the poles, farther upslope, and into deeper waters, escaping habitat that is no longer optimal or suitable. Spring events, like flowering or the arrival of birds, are happening sooner. Surprisingly, the signature of climate change is found in another place: nests. This time climate change is altering the ratio of males to females born, or the sex ratio.

Unless you spent a year of graduate school reading dull articles on primate sex ratios, you've probably not thought much about the topic. Sex ratios for many animals tend to be fairly even. In case you're wondering, for humans, slightly more boys are born than girls (about 5%), but that early advantage eventually peters out because more males die from natural causes, accidents, and injuries (you might want to check out this study published in the [British Medical Journal](#)).

Besides winning back the better color, this is not such bright news for guys. Sex ratios can be altered by resource levels and social factors, and also the climate.

When your gender is determined not by genes but by the temperature, as in the case for some baby reptiles and fish, the climate is particularly important. This is true for some of our most charismatic species in the Everglades, like American alligators and crocodiles. For both species, females are cold-hearted and hot-blooded, literally in this case, both colder and hotter nest temperatures produce females, while more intermediate nest temperatures produce more males. Under global warming, we'd expect more female baby alligators, especially down here in the Everglades. This is because it is the steamy, southern-most edge of their range, which stretches north from Florida across the southeastern United States. Kind of like decorating palm trees with Christmas lights, this balmy habitat isn't optimal. Alligators here grow more slowly, ultimately reaching smaller sizes, and lay less eggs than in other parts of their range.

Alligator populations are typically skewed towards females, 70% of the population is female versus 30% male. Normally, having more females around isn't a bad thing for a growing population, unless it goes too far.

The American Alligator





The American Alligator

And it has, for a different species. At an important breeding area for green sea turtles in Australia, females outnumbered males by 116 to 1. That's an astonishingly, Themiscyra-like proportion of females, caused by warmer sand temperatures. Nesting sites at cooler locations were slightly less skewed (2 females for every male), but the Themiscyra population has been producing a majority of females for decades already. This doesn't bode well for the future, you need some males around for more baby turtles. Here in Florida, we're also seeing more females coming of nests for three imperiled species: loggerhead, green, and leatherback sea turtles. In addition, hot and dry years lead to fewer adorable turtle hatchlings climbing out of nests and scampering into the ocean.

In contrast to this matriachal world, they're seeing something different for American crocodiles. In the Yucatan peninsula in Mexico, sex ratios of hatchlings have been skewed towards males (~2 males to every female). Temperatures there are in that sweet spot for males, not too cold, not too hot. If you thought too many females was bad, too many males is even worse. Unless males have an important role in parental care (like many birds or humans), more males, and consequently less females, just means less babies. But if temperatures continue to climb, the ratio may swing back to producing more females.

So hopefully it's clear that too much blue or too much pink is a negative thing. For alligators, a few more females wouldn't be detrimental. But if too many baby alligators end up being female, that could mean their numbers plummet in the Everglades and they shift north, like many other species. They may adapt by changing their nest sites or the timing of nesting (sea turtles here are already nesting 2 to 3 weeks earlier), but it's unclear if this will be enough to compensate for the warming world. This is problematic because alligators are the top predators of the Everglades, transforming the habitat in ways that benefit other species. For instance, they dig holes, creating areas of deeper water that are used by other species when water levels are low in the Everglades. They're also a big draw for tourists, support a multi-million hunting and farming industry in Florida, and are the mascot of a wellknown university up North. So their loss is ours as well.

WHILE WE CAN'T SAY FOR CERTAIN WHAT WILL HAPPEN TO THE GIANT REPTILES IN OUR STATE, IT SEEMS LIKELY ANOTHER UNWELCOME TRANSFORMATION FROM GLOBAL WARMING IS ON THE WAY...

PERHAPS THIS ISN'T SUCH A ROSY FUTURE AFTER ALL.