The effect of climate change on short and long-distance avian migrants

Global warming has a great effect on things like the advancement of events, population dynamics, food availability, and much more. We can see this effect on a variety of species such as the polar bear, insects, and birds. The effect of global warming on avian migrants is only partially known but scientists are continuously doing more research. Global climate change has an effect on the timing of migration and egg laying, sexual selection, and has different effects on short-distance migrants and long-distance migrants.

Global warming has a large effect on birds' intricate annual processes of migration and reproduction. Not all species and communities have responded to climate change the same as some have shown no advancement in migration and reproductive season. In the UK migratory birds have begun arriving and leaving up to 8 earlier over the last 30 years, but the length of stay has remained unchanged (Cotton, 2003). Breeding seasons have remained unchanged therefore the winter departure is also earlier, leading to advancements in egg laying and migration. There are benefits to arriving earlier such as a better chance at obtaining high quality breeding grounds which leads to higher reproductive success. A raise in temperature has a great effect on species flying over the Sahara desert. The increased temperature causes the dry season to advance, therefore there is a selection pressure to leave earlier to avoid passing over the Sahara in the dry season.

The effects of climate change are different for short-distance migrants and long-distance migrants. Climate change is beneficial for short term migrants because it allows for an earlier start to the reproductive season. An earlier start to the reproductive season means that the season is then longer and there is opportunity for more offspring. Also because of increased temperature short-distance migrants now do not have to travel as far or migration might not occur at all. Long-distance migrants on the other hand do not benefit from global climate change. The beginning of their reproduction cycle is dictated by the spring arrival date. Their autumn migration is constrained by the on-set of the dry season in the Sahara instead of the conditions of the breeding grounds, as they have to leave early to avoid the Sahara's dry season to allow for high migration success (Jenni and Kery, 2003). This leads to an asymmetry in the effects on climate change on short-distance and long-distance migrants.

Global climate change also effect the sexual selection of early arrive males to the breeding ground. Females favour early springing arriving males the males are more sexually "attractive" as a breeding partner because of their strong sexual signals, song, and plumage despite the costs of migration (Spottiswoode, 2006). In species where the female has greater interest in males arriving early, the dates of arrival become much sooner then in species where there is a weaker sexual selection for early arriving males (Spottiswoode, 2006).

Global climate advances the dates of arrival and departure from breeding grounds and also advances egg laying period. It has opposite effect on species with different migration distances, benefits short-distance migrant and hinders long-distance migrants. The advancement of males arriving at the breeding ground has an effect on sexual selection, as it is favoured by females. Global climate change will continue to effect the avian population in these ways and more in the future.

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