

# **LOW HUMIDITY REDUCES ECTOPARASITE PRESSURE: IMPLICATIONS FOR HOST LIFE HISTORY EVOLUTION**

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A parasite's potential effect, or "pressure", can influence the life history strategy of its host. In environments with high parasite pressure, hosts invest more in anti-parasite defense, which may limit their investment in other life history components, such as survival. This tradeoff is difficult to study in natural populations because pressure is hard to quantify. Pressure is not necessarily correlated with the abundance of the parasite. A host population can be under high pressure, yet have few parasites, because members of the population have invested heavily in defense. Therefore, the extent to which parasite pressure varies among host populations, and the cause of such variation, remain largely undocumented. In this paper we show that birds in arid regions have fewer ectoparasitic lice than birds in humid regions. We show experimentally that low humidity reduces the number of lice on birds, even when host defense is held constant. Comparisons of ambient humidity to humidity beneath the plumage demonstrate that plumage does not provide a buffer for lice against low humidity. Our results confirm that an abiotic factor can cause substantial variation in parasite pressure among host populations. We suggest that humidity may influence host life history evolution through its impact on ectoparasites.