Does climate change impact the resiliency of Mountain Chickadees?

MOUNTAIN CHICKADEES CAN TRACK CHANGES

Mountain chickadees **nest exclusively in tree cavities – and they are highly responsive to changes in environmental conditions**. Individuals can track changes in weather, food, and populations of tree cavity excavators, to benefit from warmer springs and ecosystem engineers, such as nuthatches and woodpeckers.

RESEARCHER WITH A 'PEEPER', LOOKING INTO A NEST CAVITY

OUR STUDY

We examined the direct and indirect effects of climate, food, predators, other chickadees and nest cavity characteristics on the reproductive output of mountain chickadees. We worked in a dry interior mixed coniferous-broadleaf forest of western North America, for 12 years

RESULTS

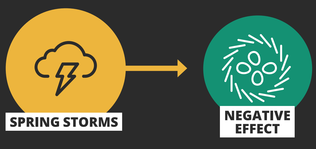
We found that **in warmer years,** mountain chickadees laid earlier and larger clutches, and sometimes were able to produce a second brood in that season.

SMALLER CAVITIES

MORE BROODS FLEDGED

Chickadees that **nested in smaller cavities** were more likely to avoid nest predation by larger-bodied predators, and successfully fledge their brood.

However, **more storms in early spring** (associated with climate change) had a negative impact on reproductive output.



We found that food, competitors and predator populations had little to no direct effect on reproductive output.

CONCLUSION

Overall, **mountain chickadees show reproductive resilience to climate change** and environmental variation through their ability to track region-wide food and nest pulses but unpredictable weather events in early spring impede their ability to respond.

Typical studies of species' responses to climate change focus on individualistic models and use reductionist approaches, but **we stress the importance of adopting holistic, community-level study frameworks** more often used in Indigenous science to refine our understanding of reproductive output in opportunistic and climate-sensitive species in the future.

PeerJ

Weather and nest cavity characteristics influence fecundity in mountain chickadees
PeerJ 10:e14327 DOI: 10.7717/peerj.14327
http://peerj.com/articles/14327