

Safety in Numbers?

Evaluate real studies without turning a pattern into a guarantee.

HS-LS2-8 "Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce.

Clarification Statement: Emphasis is on: (1) distinguishing between group and individual behavior..."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline a group behavior and circle the measured outcomes in Studies A and B. Mark a result that supports a benefit and one that limits a broad claim. Keep adult survival, pup production and species persistence distinct.

When a Bigger Pack Helps, and When It May Not

- ① African wild dogs cooperate in hunting and rearing young. Coordination among several animals is group behavior; one animal drinking alone is individual behavior. A possible benefit to a pack does not mean every member benefits equally. To evaluate evidence, identify the group comparison, the measured outcome and possible alternative explanations. Survival of an adult, production of pups and persistence of a whole species are related, but they are not the same outcome.
- ② Study A: Gusset and Macdonald (2010) examined wild dogs at twelve South African sites, covering more than forty-three pack-years of observations. Larger groups were associated with larger litters when pups emerged from dens. However, group size was not significantly related to the number of pups reaching one year or to survival rates of pups, yearlings or adults. A pack-year means one pack observed for one year. This study supports an early reproductive benefit, but not a general claim of higher survival at every age.
- ③ Study B: Creel and Creel (2015) analyzed 366 individuals over six years. Adult survival was lower in larger packs after accounting for age, sex, social status, study year and pack identity. Such controls reduce some alternative explanations but do not turn an observational comparison into a randomized experiment. Read the studies together: group size can relate differently to different outcomes. Neither study alone establishes whether an entire species will persist. That would require evidence about population change across places and generations.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 Name one group behavior and one individual behavior from paragraph 1. What distinguishes them?

2 Which result in Study A supports a reproductive benefit? Which result limits a claim of improved survival?

3 What does Study B add? Explain what its statistical controls can and cannot establish.

4 Why can neither study alone show that group behavior guarantees the species' survival? Propose an additional measurement.

3 YOUR TURN

Your own words

Evaluate this claim in 100-130 words: "Larger groups always improve every animal's survival and ensure a species survives." Use both studies, distinguish individual outcomes from species-level persistence, discuss one evidence limitation and propose a better-supported claim.

Build an evidence-based evaluation

State your judgment, connect evidence from both studies to the claim, explain a limit and offer a qualified replacement claim.

[illegible]

PART 1 • READ AND MARK

Underline a group behavior and circle the measured outcomes in Studies A and B. Mark a result that supports a benefit and one that limits a broad claim. Keep adult survival, pup production and species persistence distinct. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Name one group behavior and one individual behavior from paragraph 1. What distinguishes them?	Cooperative hunting or rearing young involves coordinated actions among animals. One dog drinking alone is an individual action; proximity alone is not coordination.
2	Which result in Study A supports a reproductive benefit? Which result limits a claim of improved survival?	Larger litters at den emergence support an early reproductive benefit. The lack of significant relationships with later pup numbers and age-class survival limits a general survival claim; it does not prove that group size never matters.
3	What does Study B add? Explain what its statistical controls can and cannot establish.	It adds evidence that larger packs were associated with lower adult survival. Accounting for measured differences reduces some alternative explanations, but unmeasured factors may remain; it does not establish causation by itself.
4	Why can neither study alone show that group behavior guarantees the species' survival? Propose an additional measurement.	They measure outcomes in observed animals, not long-term persistence throughout the species. Track survival and reproduction together across populations and generations, including habitat, disease and other changing conditions.

PART 3 · YOUR TURN (SAMPLE ANSWER)

The claim is too absolute. Study A supports an early reproductive benefit but does not show a survival advantage at every age. Study B adds a possible cost for adults. These outcomes should not be treated as interchangeable. Statistical controls improve a comparison, but they do not eliminate every alternative explanation. Neither set of observations establishes the long-term fate of the whole species. A better claim is that group behavior can create benefits and costs that depend on the outcome and context. Researchers should track survival and reproduction across populations and generations before drawing conclusions about species persistence. Larger groups are not automatically better for every individual.

Accept evidence-based alternatives and cautious causal language. A nonsignificant result is not proof of no effect. Do not interpret the 43 pack-years as 43 different packs. Sources (paraphrased study abstracts): Gusset & Macdonald (2010), *Animal Behaviour* 79, 425-428, doi:10.1016/j.anbehav.2009.11.021; Creel & Creel (2015), *Behavioral Ecology* 26, 1414-1422, doi:10.1093/beheco/arv100. These are actual studies, not simulated numbers. The whole-species claim is deliberately stronger than their evidence.