

GECKODAILY CLASSROOM RESOURCES · RESEARCH SPOTLIGHT

Research Spotlight: An Island-Hopping Clone Army

How can a species have almost no males and still be one of the most widespread lizards on Earth?

Most vertebrate species need two parents to reproduce. The mourning gecko is a striking exception: it reproduces through obligate parthenogenesis, meaning females produce eggs that develop into offspring without fertilisation. Every offspring is a genetic clone of its mother. No confirmed fertile males of this species are known to exist.

Parthenogenesis shows up elsewhere in the animal kingdom - some insects, some sharks in captivity, a handful of other lizard species - but it is genuinely rare among vertebrates as a species' primary, exclusive reproductive strategy. Most parthenogenetic reptile species, including the mourning gecko, are thought to have arisen through past hybridisation events between two related sexual species, which can sometimes produce all-female, self-cloning lineages.

The ecological consequence is dramatic. Because a single mourning gecko doesn't need a mate to start a new population, one individual accidentally carried on driftwood, in ship cargo, or on nursery plants can found an entire viable colony on a new island by herself. Researchers studying the species' genetics have found that populations across huge swathes of the Indo-Pacific and beyond are extremely closely related, consistent with recent, repeated founder events rather than long, independent evolutionary histories on each island.

This makes the mourning gecko a useful case study in a very different context: invasion biology. The same trait that makes parthenogenesis biologically remarkable - reproduction without a mate - is exactly what allows the species to establish so easily in new places, including areas well outside its original range, such as parts of Central America and the Caribbean where it has been introduced.

Why it matters in class

The mourning gecko lets you teach reproduction, genetics, and invasion ecology through a single, concrete example rather than three separate abstract lessons.

Discuss

What advantage might sexual reproduction (with genetic mixing) offer over parthenogenesis in the long run, even though parthenogenesis is faster at founding new populations? Think about disease resistance and genetic diversity.

Sources: IUCN Red List; Wikipedia (*Lepidodactylus lugubris*); Animal Diversity Web.