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Capture from the wild has long-term costs on reproductive success in Asian elephants

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Capturing wild animals is common for conservation, economic or research purposes. Understanding how capture itself affects lifetime fitness measures is often difficult because wild and captive populations live in very different environments and there is a need for long-term life-history data. Here, we show how wild capture influences reproduction in 2685 female Asian elephants (*Elephas maximus*) used in the timber industry in Myanmar. Wild-caught females demonstrated a consistent reduction in breeding success relative to captive-born females, with significantly lower lifetime reproduction probabilities, lower breeding probabilities at peak reproductive ages and a later age of first reproduction. Furthermore, these negative effects lasted for over a decade, and there was a significant influence on the next generation: wild-caught females had calves with reduced survival to age 5. Our results suggest that wild capture has long-term consequences for reproduction, which is important not only for elephants, but also for other species in captivity.

1. Introduction

Every year millions of animals, including many species of birds, reptiles and mammals, are captured from the wild for study and conservational purposes, or to be involved in the illegal wildlife trade [1]. Wild capture can have a negative impact on individual life history, at least for some species, by reducing immediate or subsequent survival (e.g. [2,3]), fertility rates (e.g. [2,4,5]) or offspring survival (e.g. [2]). Generally, however, studies have focused on relatively short time scales,