Fear of predators can behaviorally-mediate prey population dynamics, particularly when predation risk influences reproductive investment [1,2]. However, nutritional costs of reproductive investment may negate predation risk aversion in species with relatively limited annual reproductive capacity. We hypothesized that intensity of reproductive investment should predict individual decision-making such that prey exhibit riskier behaviors when rearing young or breeding. We examined the activity patterns of sympatric white-tailed deer (*Odocoileus virginianus*), a sexually segregated polygynous ungulate, and Florida panthers (*Puma concolor coryi*) in the context of the ‘risky times – risky places hypothesis’ and the ‘reproductive strategy hypothesis’ [3]. We compared detection rates and diel activity overlap of both species using motion-triggered camera traps positioned on (*n*= 120) and off (*n*= 60) anthropogenic trails across 5 reproductive seasons of deer. Florida panthers were largely nocturnal and primarily observed on trails, providing an experimental framework with risky times and risky places (Fig. 1). Contrary to studies of other taxa inversely correlating prey reproductive investment to predation risk, deer were least risk averse during sex-specific seasons associated with intense reproductive investment (Fig. 2, 3) [2,4]. Our results suggest spatiotemporally variable predation risk influences sex-specific behavioral decision-making in deer such that reproductive success is maximized.

**Figure 1.** Panther detection rates per 1000 hours (01 Feb 2015 – 01 Nov 2015) at on- and off-trail camera locations in the Big Cypress Basin, Florida, USA. Error bars indicate 95% confidence intervals.
Figure 2. Male deer detection rates per 1000 hours (01 Feb 2015 – 01 Nov 2015) at on- and off-trail camera locations in the Big Cypress Basin, Florida, USA. Error bars indicate 95% confidence intervals.

Figure 3. Female deer detection rates per 1000 hours (01 Feb 2015 – 01 Nov 2015) at on- and off-trail camera locations in the Big Cypress Basin, Florida, USA. Error bars indicate 95% confidence intervals.

References