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Exposure to Fox News increases vigilance in tadpoles of the green frog (*Rana clamitans*)

Ben Gleck[1] and Parah Salin[1]

1 - Likely in a bunker somewhere

Introduction

Organisms live in a constant state of fear: fear of getting eaten by predators, fear of eating something that it should not, or fear of a wildlife photographer capturing you in an embarrassing moment. This fear often stimulates a change in an individual's behavior whenever they perceive some environmental cue that indicates the approaching fear. These behavioral changes can then have important ecosystem consequences. For example, the reintroduction of wolves to Yellowstone National Park has caused deer and other large herbivores to become more vigilant and feed less, which in turn has increased the growth of vegetation growth along streambanks (as judged by before/after photos of Yellowstone).

Scientists have tested how the behavior of individuals changes in response to many different environmental cues, such as wolf-urine soaked snowballs thrown by researchers dressed in a moose costume, spiders with mouthparts and fangs blocked by wax, and videos of conspecifics with various sizes of genitalia. However, in order to gain a more comprehensive understanding of how individuals make behavioral decisions in a complex environment, the effect of every potential cue must be investigated.

One such cue that has yet to be studied is the broadcast of Fox News in the background of habitats. Fox News is a basic cable channel known primarily for its fear mongering and scare tactics (Dickinson 2011). For example, they have overestimated the kidnapping rate of children by 1,000% (Glassner 2004), warned that solar panels are fire traps that will burn your house down (MediaMatters 2013), and claimed that popular religious holidays are in imminent danger of being destroyed. Thus, Fox News broadcasts have the potential to be one of the most terrifying environmental cues that an individual could encounter.

The purpose of this paper, then, is to determine how exposure to a 24-hour cycle of Fox News programming affects the behavior of tadpoles of the green frog (*Rana clamitans*). We also determine the ecosystem consequences of any induced behavioral changes.

Methods

Experimental Design – Two hundred *R. clamitans* tadpoles were collected from the E.S. George Reserve in Michigan and equally distributed among twenty 1 m diameter wading pools filled with lake water. Each tadpole was individually inspected before inclusion in the experiment; only those that claimed to be unaffiliated with either Democrats or Republicans were chosen for the experiment.

Each pool contained a 16" Aquavision waterproof television and a Comcast Basic Cable subscription. In the experimental treatment, the television was tuned to the Fox News channel. The television in the control treatment was tuned to C-SPAN. Televisions remained on for the duration of the experiment.

Data collection – Tadpoles were observed for 1 week following application of the treatments to ensure

they were watching the waterproof televisions. We applied eye clips (*sensu* Kubrick 1971) to tadpoles that were not watching the television (luckily, these *R. clamitans* tadpoles happened to have had eyelids).

After the one-week observation period, we began recording several different tadpole behaviors *ad libitum* in both the control and treatment groups. We also recorded daily measurements of % of tadpoles active. A small lid above the televisions that obstructed its view from above was installed to avoid experimental bias and prevent human observers from getting upset (applicable in the treatment groups only). We recorded data for 2 weeks.

At the conclusion of the experiment, surviving tadpoles were returned and percent cover of algae in the wading pools was visually assessed. We also tried to cancel our 20 Comcast subscriptions, but, after 4 hours of talking to a sales representative, we were offered an upgrade to include a landline at the same price, which we ultimately accepted.

Results

Tadpoles in the treatment (FoxNews) group were, on average, 56% less active than tadpoles in the control (CSPAN) group (Figure 1). Treatment tadpoles mostly were observed transfixed in front of the televisions. Most of their time not spent in front of the tvs was dedicated to constructing bomb shelters out of the overgrown algae (Figure 2), and accusing zooplankton of taking their jobs. In addition, FoxNews

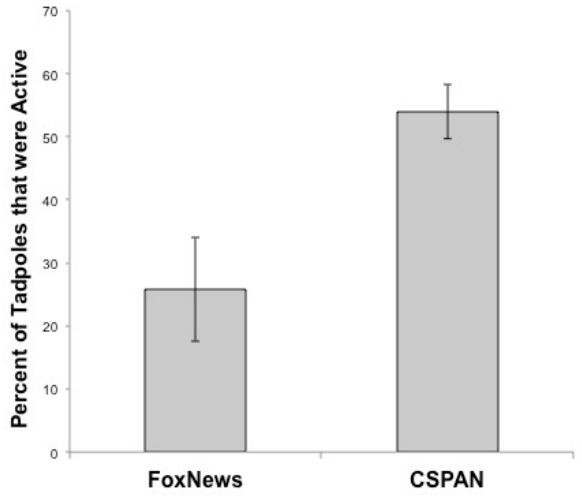

Figure 1. Mean percent activity (with 1 plus/minus standard error bars) of tadpoles exposed to 2 weeks of either Fox News or CSPAN.

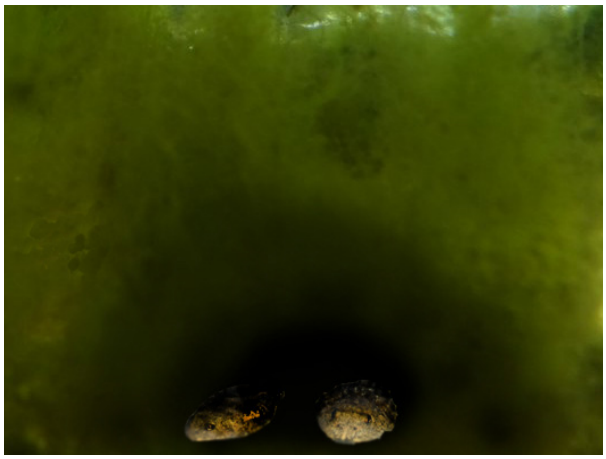

Figure 2. Two *R. clamitans* tadpoles observed in a bomb shelter (i.e., refugia) made of algae. Algal bomb shelters like these were only observed in the Fox News treatment.

tadpoles somehow obtained firearms, and spent a considerable amount of their time at self-constructed gun ranges.

Tadpoles in the control (CSPAN) group mostly avoided the spatial area proximal to the televisions. In fact, most of the TVs in the control group developed a thick mat of algae. Although CSPAN tadpoles were, on average, more active than FoxNews tadpoles, they also spent most of their non-active time napping in front of the televisions.

There was about 3x as much algae in the FoxNews pools than in the CSPAN pools, suggesting that the CSPAN tadpoles ate much more algae than the FoxNews tadpoles. However, at the end of the experiment, the FoxNews tadpoles weighed almost twice as much as the CSPAN tadpoles. This result can be explained by the lack of activity of FoxNews tadpoles and the observation that FoxNews tadpoles would often order pizzas delivered to their pools. Plus, a Chik-Fil-A opened up in one of the FoxNews pools, which could also have attributed to this difference in body mass.

Discussion

As expected, tadpoles exposed to the Fox News channel for two straight weeks became much more vigilant than the control set of tadpoles. In addition, their increased vigilance subsequently caused an increase in their food resource—algae. This research demonstrates that Fox News is an important environmental cue that indicates impending danger. Further research is needed to determine if Fox News

similarly affects other groups of organisms besides tadpoles and humans.

Because of some of the uncharacteristic behaviors expressed by tadpoles in the control (CSPAN) group, including increased napping and just general lethargy, we question if CSPAN was an adequate control. Ideally, the control television program should be a news network that is entertaining to watch, yet doesn't resort to scare tactics. Currently, we are unaware of such a news program.

Paradoxically, even though Fox News-exposed tadpoles were more vigilant than CSPAN-exposed tadpoles, we believe that they would not be less susceptible to predators. As stated above, Fox News tadpoles mostly were transfixed in front of televisions, which would presumably make them easy targets for most predators. However, as also stated above, some Fox News tadpoles had guns, and the effect of guns in preventing danger is hotly debated.

In conclusion, we show that exposure to the FoxNews television programming alters several behaviors of tadpoles of the green frog, and that these behavioral changes have several important effects on ecosystem functioning. Our lawyer would also like us to insert this sentence that states that we bear no responsibility for any future green frog uprising that may occur in the E.S. George Reserve in Michigan.