S1. DETAILS FOR MATERIALS AND METHODS

(a) Snake Surgery

To avoid prolonged recovery periods from surgery, we used epoxy to externally attach transmitters to the dorsum of five other adult snakes (total number of snakes = 27) captured in early June of 2010. Only one of these snakes ended up being a focal animal for this study (one male). Snakes used in our analyses for this study gained an average of 30.0% (n = 10, SD = 18.4) of their original mass from 2009 to 2010 (sample size only includes snakes that were recaptured in both years), suggesting that our radio-implementation methods did not adversely affect their foraging behaviour.

(b) Portable Video Surveillance Unit (PVSU) Materials

Each PVSU consisted of a security camera (mounted on a tripod) coupled to a mini-digital video recorder (SVAT CVP800 and Supercircuits MDVR14-3) powered by a rechargeable, 12-V sealed lead-acid battery. Cameras (Swann PNP-150 and
SuperCircuit PC161IR-2) recorded in color when ambient light was above 0.1 lux.

Under low light conditions cameras automatically switched to black and white recording with infrared light-emitting diodes. We set mini-DVRs to record continuously at 6, 10, 15, or 30 frames per second onto 4 gigabyte secure digital (SD) cards (frame rate setting depended on the duration we intended the recording to last), with the date and time to the nearest second displayed on the recording.

(c) Manned Observations

While recording snake and squirrel behaviours, observers sometimes had to move within 5 meters of focal animals due to the obscuring effects of tall vegetation. Snakes and squirrels appeared to be habituated to our presence; however we excluded data on the few occasions where our presence caused an immediate defensive behavioural reaction from either the snake or squirrel.

(d) California Ground Squirrels

Using Tomahawk live traps baited with black oil sunflower seeds, we captured 233 adult ground squirrels (100 females and 60 males from Camp Ohlone during 2009-2010 and 47 females and 26 males from Frog Pond in 2010). After lightly anesthetizing squirrels with ketamine, we weighed, sexed and marked them with Nyanzol pelage dye for individual recognition at a distance, and with fingerling ear tags for permanent identification. In 2009, we measured squirrel body length as well (tip of outstretched squirrel’s nose to their anus). We were unable to mark many of the adult ground squirrels at both of our sites, so many of the interactions
we recorded occurred with squirrels of unknown sex. This prevented us from exploring whether tail-flagging adult squirrels of different sexes influenced rattlesnake foraging behaviour. Although we did not measure or mark pups, we were still able to unambiguously identify pups based on their small size relative to adults.

(e) Distance Reference Measurements

Klauber [1] made detailed measurements of the correlation between body length and head length of a variety of rattlesnake species by measuring several hundred adult snakes of each species. Because we had measured the body length of all of our snakes, but not head length, we used Klauber’s correlations to estimate each individual’s head length. For 3 of the 29 encounters, we were unable to accurately estimate the snake’s head length (in shadow of burrow entrance), so we used the marked squirrel’s body length as our reference.

(f) Cox PHREG Analysis

Cox proportional hazards regression (PHREG) analysis enables users to model the effect of time-dependent covariates, such as squirrel-snake interactions, on an event (i.e., time to abandon). The main advantage of survival analyses over traditional regression is that it allows for the inclusion of censored data (i.e., events that were never observed), which account for the absence of an event up until the observation ended.
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