

correlated with CORT and IncCORT response. In reproductively active males, testis volume was negatively correlated with CORT, and the endocrine stress response was depressed when males were reproductively active (~15 vs. 33 ng/ml). In summary, high and rapid CORT responses were observed in pregnant females, suggesting a high stress- and risk-sensitivity, whereas in males reproductive activity coincided with a depressed response to stress. Findings are in accordance with our 'slow life' hypotheses. We propose that the observed responses may contribute to overall fitness; they should be selected for if benefits of CORT-facilitated escapes increase lifetime reproductive success and outweigh lifetime reproductive costs such as adverse effects of a strong endocrine stress response. Provided that high CORT levels are costly, the demands of reproduction may be more easily met in males of our study-species by a suppressing CORT.

The Use of PIT Tags for Quantifying Roost Associations by Forest-dwelling Big Brown Bats

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A recent telemetry-based study of social interactions between *Eptesicus fuscus* in the Cypress Hills, SK, Canada provided evidence in support of the 'fission-fusion model.' This model proposes that individual members of a colony both congregate and segregate over time in different roosts. Although radio-telemetry studies have substantially improved our understanding of the roost requirements of forest living bats, the short lifespan and high cost of small radio-transmitters typically precludes long-term study of individuals in most cases. We used PIT tags in combination with telemetry to document roosting associations of a maternity colony of *E. fuscus* in the Cypress Hills during the summers of 2003 and 2004. PIT tag readers installed at aspen cavity roosts recorded unique codes for each PIT-tagged animal as well as the date and time of each record. This system provided data on roosting behavior by a large number of individuals ($n > 40$) and for longer periods of time (one to two field seasons) than did telemetry alone, as most radio-transmitters were groomed off within days of application. Preliminary data provide additional support for the fission-fusion model as an explanation for roosting patterns by *E. fuscus*. However, bats used more roosts over a much larger area (>2-fold) than previous data suggested.

Build It and They Will Come: Establishment of a Founder Colony of Brazilian Free-tailed Bats (*Tadarida brasiliensis*) in a Man-made Cave

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Few researchers have had the opportunity to record the establishment of a major founder colony of bats. In this paper, we report the establishment of a founder colony of Brazilian free-tailed bats (*Tadarida brasiliensis*) in a man-made cave (Chiroptorium), an earthen-covered structure that resembles a natural cave developed specifically for free-ranging bats. This unique structure was designed and constructed using concrete, reinforced steel and Gunitite, and covered with soil and planted with native grasses for insulation. Construction began in 1997 and was

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completed in spring 1998. Until recently (August 2003), this structure attracted only small numbers of transient bats in spring and autumn. The arrival of “several thousand” transient *T. brasiliensis* in August 2003, nearly five years after construction was completed, provided evidence that the environmental conditions inside the Chiroptorium and in the surrounding landscape were sufficient to sustain more than a few transient individuals. In summer 2004, a founder maternity colony formed in the Chiroptorium, where young were born and successfully fledged. In early July 2004 (before young bats were able to fly), we censused adults as they emerged from the Chiroptorium using infrared thermal imaging cameras configured to record emerging bats. Computer vision methods, using object recognition algorithms to identify thermal maxima, were used to characterize individual bats during their nightly emergence. The relatively short emergence periods (~ 5 min) recorded on two census events made it practical to employ a manual counting method – using frame-by-frame enumeration of bats in the camera’s field of view. These manual counts, based on data collected on 2 and 3 July 2004, were used to validate our automated censusing algorithms (e.g., object recognition combined with flow-rate analysis and individual tracking). Preliminary validation analyses indicate that estimates derived from our automated census methods are consistent with a manual counting method. We expect to use our validated estimate of colony size for this founder group of *T. brasiliensis* as a baseline for assessing the future status of this newly established maternity colony. Stay tuned!

Ectoparasites of Mormoopid Bats on Puerto Rico

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Three species of mormoopid bats live on Puerto Rico (*Mormoops blainvillii*, *Pteronotus quadridens*, and *P. parnellii*), and in 2002, we conducted the first systematic survey of the ectoparasites of these bats. We captured bats as they returned from foraging to Culebrones Cave, within the Mata de Plátano Field Station of Interamerican University, 7 km SW of Arecibo, and systematically examined them for parasites. We examined 20 males and 20 females of both *M. blainvillii* and *P. quadridens*, but only nine *P. parnellii* were captured during the study. Despite living in the same cave, there were consistent differences in the rates and types of infestations among the species of bat. Overall rates of infestation were 100%, 78%, and 48% for *P. parnellii*, *P. quadridens*, and *M. blainvillii*, respectively. The listrophoroid mite *Lawrenceocarpus micropilus* was found on 80% of *P. quadridens*, 44% of *P. parnellii*, and 5% of *M. blainvillii*. Streblid flies (two species), in contrast, occurred on 89% of the *P. parnellii* but were virtually absent from the other bats. *M. blainvillii* was most commonly infested (32%) with chiggers (five species). Thirteen species of ectoparasite have been identified so far.

Milk Composition of Captive *Artibeus jamaicensis* and *Phyllostomus discolor*

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We analyzed milk from a captive colony of two phyllostomid bats, *Artibeus jamaicensis* and *Phyllostomus discolor*. The milk collected was from mothers of known stage of lactation (days 4