

# BATS

## Flying Mammalian Resources

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# BATS

*Flying Mammalian Resources*

## Order Chiroptera

- Suborder Megachiroptera
  - Family Pteropodidae
    - 42 genera
    - 166 species

Old World fruit and nectar feeding bats.

## Order Chiroptera

- Suborder Microchiroptera
  - 16 families
    - 135 genera
    - 759 species
  - Diet includes insects, small vertebrates, blood, fruit, nectar, and pollen.
  - Includes the bats we encounter

## Bat Facts

- Nearly 1000 species of bats, almost ¼ of all mammal species
- Approximately 47 species in N. America
- Smallest weighs < a penny (Bumblebee bat)
- Largest weighs 3 pounds (Flying Fox)
- LBB lives 34 years
- Brazilian freetails forage 2 miles high

## Bat Facts Continued

- One bat eats 3000+ insects a night
- Bats tolerate temps from 23F-122F
- 20 million freetails eat 200 tons nightly
- Thanks for the tequila; pollinators
- Bats see well
- <1/2 of 1% population has rabies

## Bats in Decline

- Of the 47 species, more than ½ are in decline or already endangered.
- Seven are listed as endangered; with others being considered
- Status of many unknown

## Causes for Decline

- Disturbance at Hibernacula and Maternity roosts (MAJOR)
- Pesticides
- Perturbations of foraging and migration routes
- Cave alterations (Guano mining, entrance mod., poor bat gates)
- Predation; at gates/ during flight
- Over harvest for food (tropical)

## Bat Biology

- High frequency sound emits at 0-200 per second (echolocation)
- Used for obstacle avoidance and prey detection
- Forage on the fly
- One pup per year
- Maternity, bachelor, and transient colonies
- Affinity for roost sites

## Considerations

- Know your local bats; through research or local experts
- Seasonal or year round residents
- Sexual status at summer roosts
- Objective of study; P/A, pop. est., movement, genetics, other
- Cave, mine, tree, building dependent

## Capture methods

- Follow state and federal guidelines and permitting for capture and handling
  - Hand pick
  - Mist nets
  - Harp traps
  - Trip lines
  - Other

## Survey Methods

- Echolocation detectors- combine detectors and netting to improve efficiency
- Arm bands
  - Plastic vs. metal
- Telemetry; <5% body mass
  - Torbot bonding cement
- Light sticks

## Monitoring

- Light Loggers
- Temp/Humidity Loggers
- Laser Temp. recorder
- Binoculars- tall ceilings
- Red light vs. not

## Population Estimates

- Visual estimates (sq. ft.)
- Outflight; night vision goggles
- IR Photography
- Guano pile measurement- shortly after bats leave
- Other

## Frequency of Survey

- Not too often unless monitoring for impacts
- Every two years, by recovery plan, or local expert advice
- Annually, if exit counts
- **Never during maternity season!** If necessary: after adults have left for the evening

## Protection Methods

- Cave closure with signage
- Education/Outreach
- **If all else fails: BAT GATES/FENCES**
  - Use standard bat gate design (BCI, ACCA)
  - 5.75 inch spacing, horizontal bars far apart, expanded metal foundation
  - Use site specific designs







Big Brown Bats (*Eptesicus fuscus*)



Gray Bat (*Myotis grisescens*)



Northern Long-eared Bat (*Myotis septentrionalis*)



Indiana bat (*Myotis sodalis*)



Ozark Big-eared Bat (*Corynorhinus townsendii ingens*)



Lesser Long-nosed Bat (*Leptonycteris curasoae*)



Spotted Bat (*Eidemia maculatum*)



Pallid Bat (*Antrozous pallidus*)



**Brazilian Free-tailed bat pups**



**Brazilian Free-tailed Bats** (*Tadarida brasiliensis*)