1. **Species considered**

Bats that regularly use caves and mines in the AppLCC region:

1. *Eptesicus fuscus* – Big brown bat
2. *Perimyotis subflavus* – Tri-colored bat
3. *Corynorhinus rafinesquii* – Rafinesque’s big-eared bat
4. *C. townsendii virginianus* – Virginia big-eared bat
5. *Myotis austroriparius* – Southeastern myotis
6. *M*. *grisescens* – Gray bat
7. *M*. *leibii* – Eastern small-footed bat
8. *M*. *lucifugus* – Little brown bat
9. *M*. *septentrionalis* – Northern long-eared bat
10. *M*. *sodalis* – Indiana bat
11. **Federal status of these species**

Some of these taxa are federally listed as endangered or have been considered for federal listing:

1. *C. townsendii virginianus* – Federally endangered
2. *M*. *grisescens* – Federally endangered
3. *M*. *sodalis* – Federally endangered
4. *M. leibii* – considered for listing, but listing was judged not warranted in 2013
5. *M*. *septentrionalis* – proposed for listing as endangered in 2013
6. *P*. *subflavus –* will be considered for listing shortly
7. **Sources of bat data**
8. All available records for each of the ten species were downloaded from the Bat Population Database (BPD, my.usgs.gov/bpd) on January 4, 2015.
9. *M*. *sodalis* – FWS Indiana bat database shared by Andrew King ([andrew\_king@fws.gov](mailto:andrew_king@fws.gov)) the FWS lead on Indiana bats. This includes 366 sites across the AppLCC states. Sites are identified by state and county, without locality data. These sites are ranked from P1 to P4 based on importance (# of bats observed).
10. *M*. *grisescens* – According to Shauna Marquardt ([shauna\_marquardt@fws.gov](mailto:shauna_marquardt@fws.gov)) the FWS lead on gray bats, the FWS does not have a database of gray bat sites as there is for Indiana bats. She suggested the best source of data is Martin (2007) “Assessment of the Population Status of the Gray Bat (*Myotis grisescens*)” which has an appendix listing ~215 gray bat caves across five AppLCC states. Sites are identified by state and county, without locality data. These sites are prioritized P1-P4.
11. *C*. *townsendii virginianus* – There are hibernacula and maternity colonies listed in the 2008 FWS 5-year review authored by Barbara Douglas, FWS lead biologist for the subspecies. The report lists 19 known hibernacula and maternity colonies, identified by name and state. Census data for WV sites can be found in Stihler (2011).
12. KY data from Harker and Barr (1979, 1980)
13. WV data from West Virginia Speleological Survey (Barrackville WV) Bulletin 11 — The Vertebrate Fauna of West Virginia Caves by E. Ray Garton, Fredrick Grady & Steven D. Carey, 1993.
14. Other data shared by various state sources.
15. **Mapping**

There were 11,678 records from the 15 states that comprise the AppLCC. These records were geocoded at the county level (to the centroid of the county the record was from). Records that could not be geocoded or were from a county outside the AppLCC were removed. This left 9988 records. These records were mapped as presence/absence by county for each species across the AppLCC.

We limited mapping to the county level (1) due to the sensitivity of the data, (2) because some of the data we acquired only specified the county of some sites, and (3) because of challenges georeferencing sites in states where cave data was not available.

1. **Data files and output**
2. Excel file (“AppLCC bat records”) with 11,678 bat records from states in the AppLCC
3. ArcGIS shapefiles:
   1. bat\_records\_AppLCC\_states.shp of 11,678 geocoded records from states in the AppLCC
   2. bat\_records\_AppLCC\_counties.shp of 9988 geocoded records from counties in the AppLCC
4. A presence/absence county map for each of the 10 bat species considered
5. **Limitations of the data**
6. The BPD is being updated from version 1 to version 2 with records being added currently.
7. Not all states have reported data to the BPD equivalently.
8. There is a strong bias in the data available towards the Federally listed species. Common species such as the Tri-colored bat and the Big brown bat have often been ignored or gone reported, leading to their relative underrepresentation in the available data.
9. Not all state and federal sources had the time/inclination to share data with this project.
10. The ten bat species considered are associated with caves/karst to varying degrees.