

# Instructions for Electronic Submittal of Bat Survey Data for U.S. Fish and Wildlife Service 2020

In an effort to reduce redundancy, increase efficiency, and minimize data entry errors, the U.S. Fish and Wildlife Service (Service) Ecological Services Field Offices in Region 3 (Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin) collaborated to create a single standardized spreadsheet<sup>1</sup> for electronic submittal of bat survey data by federal permittees to the Service. Recently issued permit terms and conditions require submission of data in the format provided by Service Field Offices (i.e., information identified in the standardized reporting spreadsheet). In addition to a traditional narrative report, permittees receiving Region 3 issued permits will be required to report their survey data using the “standard” format provided in the standardized permit reporting spreadsheet (i.e., provision of all spreadsheet information) to fulfill the annual reporting requirements of a section 10(a)(1)(A) Recovery Permit (Please note: Other Regions and/or Field Offices may require the same spreadsheet). Permittees are encouraged to submit their survey data via the standardized permit reporting spreadsheet not only to facilitate determination of reporting compliance, but also to facilitate improved assemblage of data to determine impacts on the species. If permittees intend to collect additional data that does not fit within the format of this spreadsheet, they should coordinate with the Service Field Office for the study area regarding how to report the additional data<sup>2</sup>. If multiple Federal permittees are contracted and/or subcontracted to conduct bat surveys as part of a single large project, each permittee is required to separately report the bat captures made under their permit so that the permittee responsible for each bat capture can be clearly identified. Due to reductions in bat populations, primarily from white-nose syndrome (WNS), the Service is requesting that information on **all** bat observations (i.e., captures, roost counts, and acoustic detections) of **all** bat species be submitted, regardless of current Federal status.

## **Instructions:**

The spreadsheet is divided into several worksheets (Capture Site Info, Capture Data, Roost Site Info, Roost Count, Acoustic Site Info, Acoustic Survey Results, and Accepted Codes). **It is important to start by filling out the “Site Info” worksheets first for whichever surveys have been completed because the information from these worksheets populates drop-down boxes**

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<sup>1</sup> Prior to data submittal, permittees should ensure that they are using the most current version of the permit reporting spreadsheet, which will be available on the Service’s R3 Indiana Bat Summer Survey Guidance web page

(<http://www.fws.gov/midwest/Endangered/mammals/inba/inbasummersurveyguidance.html>).

<sup>2</sup> Currently this spreadsheet is not suitable for submitting results of acoustic driving routes.

**in other worksheets.** The “Accepted Codes” worksheet provides a list of valid abbreviations that are to be used in the Capture Data worksheet. It also includes a key to which fields are required and which are optional.

***Site Info Worksheets (Capture, Roost, or Acoustic):*** One site entry should be made for each night of monitoring. For mist netting or harp trapping, a survey “site” is an area containing one or more nets/traps in relatively close proximity that require surveyors no more than 10 minutes to walk between during net checks. One GPS point should be taken for each site. The latitude (**LAT**) and longitude (**LONG**) should be entered in decimal degrees (NAD83) for the site either by taking a point at the net with the most captures or within a centralized location at the site. Please do not enter the location of each individual net as a site. Should a spreadsheet be submitted this way the spreadsheet will be returned to the surveyor for revisions.

The project name field should be filled in using the name someone would refer to the project if they were contacting the Service, and not the project number of the surveyor. The state and county in which the survey was conducted are entered using drop-down menus. Once the spreadsheet is turned into the Service the GPS points will be plotted and the county provided by the surveyor will be compared to the county where the point actually is located. Sites where the two values do not match will be flagged as possible bad GPS points. Surveyors responsible for sites that are flagged will likely be contacted to verify the location of the survey site.

The type of survey refers to the survey method (e.g., mist-net, harp trap, or acoustic). If surveyors used both mist-nets and harp traps at a particular site, only one entry needs to be made in the Capture Site Info worksheet for each date. If acoustic detectors, in addition to either mist-nets or harp traps, are used at the same site, one entry should be made for the acoustic monitoring (and included in the Acoustic Site Info worksheet) and another one for the mist-net/harp trap.

The number of nets or traps, used on that particular date should be entered in the “**Number of Net sets/Trap Nights...**” column (e.g., 2 mist-net sets and 1 harp trap set for one night equals 3 net/trap nights)<sup>3</sup>. The “**Habitat Type or Feature being Surveyed**” column has a drop-down menu with general descriptions of likely monitoring locations. Information on the federally permitted individual(s) responsible for conducting the survey should be entered into the designated columns. This information should be submitted even if no bats were captured/detected during a survey night.

The **total net area** metric provides a more quantitative measure of trap effort. Total net area is the square meters of net deployed on a particular night (e.g., two single high 2.6 x 12m nets

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<sup>3</sup> Double or triple-high nets are considered as one net set.

would equal 62.4 m<sup>2</sup> of net). Table 2 has the net area for some of the more common net setups. Any area of overlap between nets should be subtracted from the total net area.

**Capture Data:** Within the Capture Data worksheet information may be entered one of two ways: either through typing commonly used codes for species, age, sex, and reproductive condition (see the “Accepted Codes” worksheet), or by using drop-down menus within the appropriate section (Drop-down Data Entry)<sup>4</sup>. The remaining information on captured bats (e.g. weight, right forearm length, wing score, etc.) should then be completed. If samples were taken, please provide additional information in the comments field. The “**New band or recapture**” field should only be completed if the bat was banded. In the unlikely event that an existing band is replaced with a new band the new band number should be listed in the **Band ID** column and the old band number should be listed in the comments. If the bat is radio tagged, the frequency<sup>5</sup> should be entered in the radio frequency field. This will auto-populate a drop-down menu on the Roost Count worksheet. The “**Site ID**” field is a drop-down menu comprised of a concatenation of the Project/Site/Date/Survey Type information from the Site Info<sup>6</sup>. The Site ID that is associated with each bat captured/detected should be selected. The Site Check column was added in 2017 to verify that the submitted “**Site ID**” was valid. It should auto-populate with the project name when a Site ID name is entered.

**If no bats were captured for a particular night of surveying:** Type “nobats” in the species code column, or select “No bats” in the scientific name column. Upon submittal to the Service, the inclusion of a “No bats” observation for a night of surveying signals to the reviewer that all of the data has been entered for this site. Failing to include this will prompt a review letter looking for clarification as to whether data is missing.

**Roost Site Info:** The roost worksheet requests much of the same information that is found within the 2016 Range-Wide Indiana Bat Summer Survey Guidelines. Many cells are comprised of drop-down menus to facilitate data entry. If the exact location of the roost was not accessible due to terrain, access, etc. the approximate location of the roost should be entered by selecting “triangulated” in the Location Accuracy column.

**Roost Count:** This worksheet relies heavily on information from other worksheets in order to simplify data entry. When a count is conducted only six pieces of information need to be entered: the species of bat known to use the roost; the “**Bat ID**”<sup>7</sup> (if a bat was radio tracked to this roost)

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<sup>4</sup> If using the drop-down menus, it is not necessary to go back and fill out the abbreviated codes section.

<sup>5</sup> If the bat is tagged with a coded transmitter the frequency recorded should be the radio frequency combined with the code, e.g., freq: 151.922 code 101. In this example the value entered into the radio frequency cell should be 151.922101. This value needs to remain a number in order for other portions of the spreadsheet to work (e.g., 151.922-101 would cause errors).

<sup>6</sup> If the drop-down appears blank, scroll up within the drop-down box to find the site name.

<sup>7</sup> The Bat\_ID is a combination of the radio frequency used to track the bat and project name.

and “**Roost ID**”, which are derived from information from the Capture Data and Roost Site Info worksheets respectively. If the radio tagged bat was occupying the tree the night the count was conducted, select “yes” in the appropriate box; if the bat was absent from that tree, select “no”, or “unknown” if it’s not known whether the bat is present the day of the count. This information will be used to track bat movements between roost trees. Finally, the “Date” the survey occurred and the “Total Emergence Count” observed on that date need to be entered. If multiple counts occur at the same roost please enter all of the counts, including zero counts, not just the high count. Should several radio tagged bats use the same roost on the same date, create a separate entry for each radio-tracked bat (for an example see Table 1.)<sup>8</sup>. The Service should be able to follow the daily movements of each tracked individual based upon the information within this worksheet.

**No counts or triangulated roosts:** In instances where either no counts were conducted at a roost, or the exact location of the roost was not determined (i.e., the position was determined through triangulation) it is still necessary to enter data into the Roost Count worksheet. Enter all of the available information (Species, Bat\_ID, Roost\_ID, and Date). For triangulated roosts, the Date should be the date the roost was located, and “Used by this bat the night of the count?” should be “yes”, the emergence count should be left blank (see example below).

Table 1. Example of roost count data involving 3 bats, two of which used the same tree on the first night, but used different trees on the second night.

Bat ID (if applicable)	Used by this bat the night of this count? (if applicable)	Roost ID (use drop- down menu)	Total Emergence Count	Date	Comment
150.001-CCW	Yes	CC RT1	35	5/15/2017	
151.002-CCW	Yes	CC RT1	35	5/15/2017	
150.001-CCW	Yes	CC RT1	40	5/16/2017	
151.002-CCW	Yes	CC RT2	2	5/16/2017	
150.003-CCW	Yes	CC RT 3		5/17/2017	No count conducted
149.003-CCW	Yes	CC RT4		5/17/2017	Triangulated

**Acoustic Survey Results:** Enter each species detected during the survey, and the bat ID software program used to identify that species. The number of calls identified for each species should include the total number of calls identified by the computer program plus the number of calls that

<sup>8</sup> This is to facilitate the tracking of individual bats.

were qualitatively identified. If more than one program is used to analyze data from a site, each species identified should be included on a separate line for each software program used to identify that species (even though this may create multiple lines with the same species). The **Bat ID Software Program Used** column is supplied with a drop-down menu of programs currently approved for use for summer surveys of Indiana bats<sup>9</sup>. The version of the ID software program used should also be identified in the Version column. Be sure to include the MLE value for all species, not just the federally-listed species. **In order to simplify reporting, surveyors only need to include those species/categories where the MLE value is significant (i.e.,  $\leq 0.05$ ) or if the qualitative review determined that the species was present regardless of the MLE value.** If there are no instances where the MLE value is significant for a particular survey night select “No bats” on the Acoustic Survey Results worksheet for that night. The number of calls confirmed through qualitative ID should be indicated for each site by species including the full name of the individual providing the qualitative ID. As with previous worksheets, the “**Site ID**” column is a drop-down menu comprised of a concatenation of the Project/Site/Date/Survey Type information from the Acoustic Site Info worksheet. The **Site ID check** column should auto-populate with the name of the project, if it does not, then the **Site ID** is not valid.

If the acoustic detectors were active for the entire day, for the **Start Time** and **End Time** on the Acoustic Site Info worksheet list the sunset and sunrise times. Including daylight hours when bats are not likely to be active artificially inflates the level of effort conducted at the site.

**DO NOT move columns or adjust the format of this spreadsheet.**

***Naming instructions for saving files:***

- If all of the surveys for a permit number are on one spreadsheet (this can be multiple states), save the file as that permit number (e.g., 2019\_TE000000).
- If all of the surveys have the same permit number and but are on several spreadsheets broken up by states, use the permit number and then list out the state names (e.g., 2020\_TE000000\_OHIO\_INDIANA, 2020\_TE000000\_IOWA).
- If there are multiple permit numbers from the same organization/individual’s name, use the organization/individual’s name and the state or states (e.g., 2019\_Leibii\_Inc\_OHIO). To

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<sup>9</sup> A current list of Service-approved acoustic programs/versions is available at <http://www.fws.gov/midwest/Endangered/mammals/inba/surveys/inbaAcousticSoftware.html>  
USFWS v.1,  
2020

avoid confusion, this should include every survey that organization/individual conducted in that state.

Please coordinate within your organization to ensure that multiple individuals aren't submitting the same data.

For questions about using USFWS spreadsheets contact your local Service Field Office. Software developers seeking technical assistance with the USFWS spreadsheets should contact Keith Lott at [Keith\\_Lott@fws.gov](mailto:Keith_Lott@fws.gov)

Table 2. Net area (m<sup>2</sup>) for commonly used net sets<sup>10</sup>.

Net length (m)	Single high	Double high	Double high with one panel overlap	Triple high	Triple high with one panel overlap	Triple high with two overlapping panels
2.6	6.76	13.52	11.83	20.28	18.59	16.9
4	10.4	20.8	18.2	31.2	28.6	26
6	15.6	31.2	27.3	46.8	42.9	39
9	23.4	46.8	40.95	70.2	64.35	58.5
12	31.2	62.4	54.6	93.6	85.8	78
18	46.8	93.6	81.9	140.4	128.7	117

<sup>10</sup> Assumes a 2.6m high mist-net with four shelves/panels.