

**American Burying Beetle Mitigation Lands Guidelines**  
Arkansas Ecological Services Field Office  
November 2017

This document provides guidelines for the establishment of mitigation lands for American Burying Beetle (ABB) in Arkansas. These guidelines are intended for use by conservation bank sponsors, project proponents pursuing permittee responsible mitigation, third party mitigation providers, and other parties engaged in conservation and recovery of ABB. This document addresses the assessment of potential property associated with establishment of mitigation lands. Recommended mitigation ratios are described in *Compensatory Mitigation Ratios* in this document. General guidelines for mitigation lands including financial assurances, real estate assurances, and reporting requirements for ABB in Arkansas are available from the Arkansas Ecological Services Field Office (ARFO). The boundaries of the ARFO-determined ABB Area and the Service recommendations regarding ABB surveys for projects in the ABB Area (Figure 1) in Arkansas and have not changed and are accessible at the ARFO website (<http://www.fws.gov/arkansas-es/>) or through the ARFO in Conway, Arkansas.

Project proponents may propose voluntary compensatory mitigation as part of a project plan in order to contribute to the conservation and preservation of ABB habitat to offset unavoidable impacts to the species remaining after avoidance and minimization measures are implemented. Mitigation proponents will work with the ARFO during the establishment process regarding general guidelines for mitigation lands, mitigation land assessments, and property management plans.

### **Mitigation Land Assessment**

Proposals for a conservation bank or other mitigation lands submitted to the Service must include a complete assessment of the proposed property that meets the minimum standards described in this document. Mitigation land assessments must include the following information:

1. An accurate, current map clearly indicating the location of the property under consideration;
2. A current aerial photo with the date the photo was taken and the property boundary shown;
3. A map delineating habitat types identified as suitable for ABBs (and buffer areas) on the property;

### **Minimum Standards**

The basic habitat requirements of a property to be considered as mitigation land for ABB are listed below and explained further in the following sections:

1. The mitigation lands must occur within the Service-identified ABB Area in Arkansas (Figure 1) and should be prioritized in the following order:
  - Within Tier 1 and adjacent to Ft. Chaffee Joint Military Training Center (FCJMTC)

- Within Tier 1 and adjacent to any other Managed Area
- Within Tier 1
- Within Tier 2 and adjacent to a Managed Area (Natural Area or National Forest)
- Within Tier 2
- Within ABB area in Arkansas

If appropriate mitigation lands are not available in Arkansas or the Service deems another form of mitigation a higher priority, funding of research studies, captive propagation, land management, or translocation efforts may be developed and approved in coordination with ARFO.

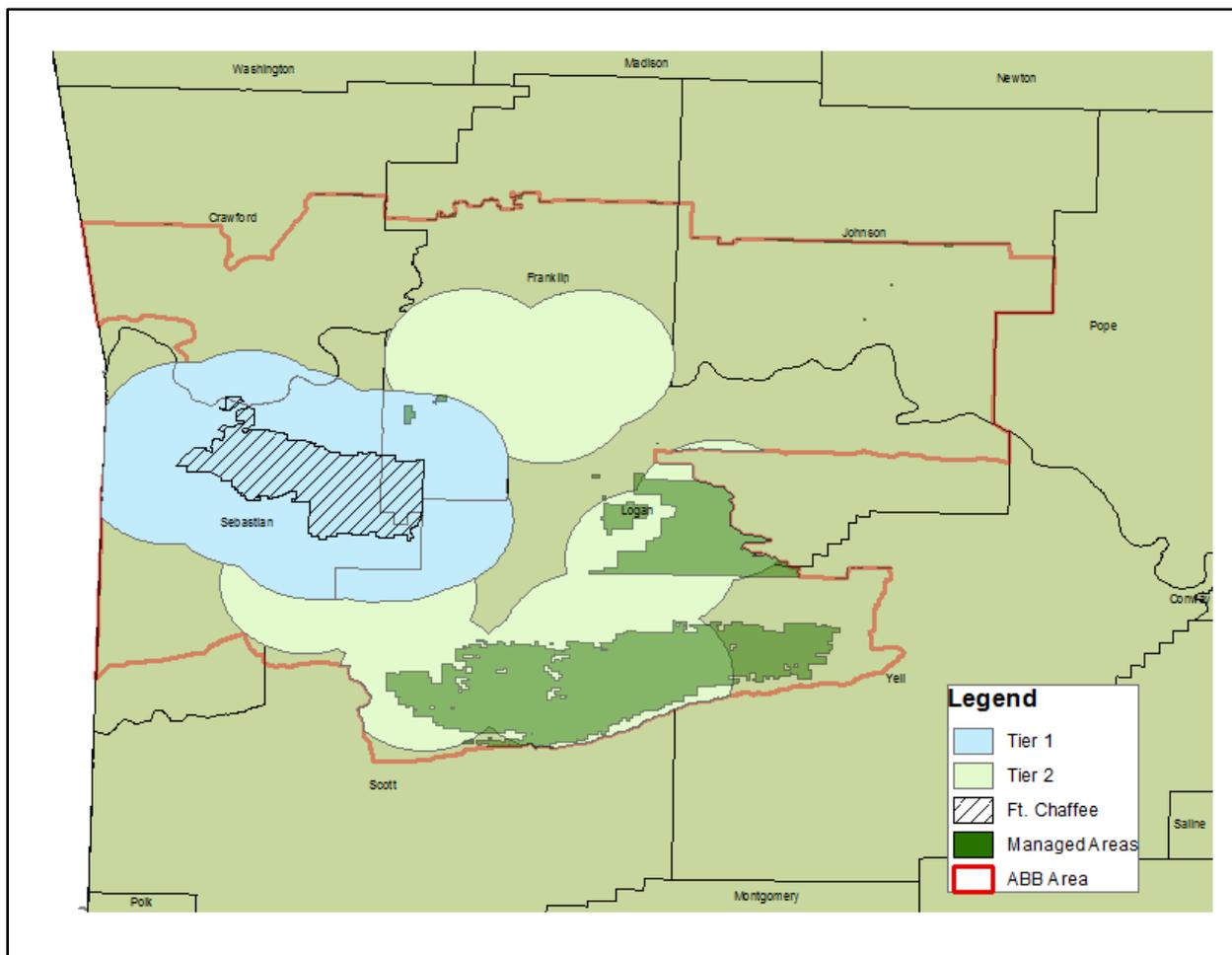


Figure 1. Mitigation and conservation prioritization areas in Arkansas.

2. The Service recommends 500 acres of contiguous, suitable ABB habitat for a standalone mitigation property. However, smaller mitigation lands of higher conservation value adjacent to occupied, protected habitat (Managed Areas) will be considered by the Service on a site-specific basis.
3. No more than 5% of the proposed mitigation land is comprised of land not classified as suitable habitat (e.g., buffer areas, food plots, wetlands);

4. Current, valid ABB surveys will be required for mitigation land establishment;
5. Sandy loam or silt loam soils for burial of carcasses and ABB reproduction must be present within the mitigation land (USFWS 1991).

#### Property Location

The ARFO developed the Tier 1 and Tier 2 Conservation Priority Area (CPA) following the methodology described in the document “CPA Process” available from the ARFO. The designated Tier 1 area surrounds FCJMTC, the highest density population in Arkansas. Tier 1 is considered analogous to CPAs in Oklahoma with regard to ABB density. The Tier 2 area is based on lower density populations and is intended to promote conservation near the protected and managed lands of the Ozark and Ouachita National Forests (U.S. Forest Service), Cherokee and Flanagan Natural Areas (Arkansas Natural Heritage Commission), and Presson-Oglesby Preserve (The Nature Conservancy). In addition, the southern area of Tier 2 allows for the establishment of a corridor of mitigation lands to encourage connectivity between FCJMTC and the National Forest populations and habitat.

#### Property Size

A minimum of 200 hectares (500 acres) of contiguous, suitable ABB habitat for a standalone property is required. In some rare cases, a smaller bank site may be accepted if it has high conservation value. This scenario will be limited to areas that are immediately adjacent to a permanently protected ABB habitat area and meets all other minimum standards.

Characteristics of adjacent and nearby habitat will be considered in the mitigation land approval process. For example, proposed mitigation lands located within or near a large residential or developed matrix may have limited habitat management options (e.g., prescribed fire restrictions due to smoke management concerns). Additionally, mitigation lands developed within these areas may have reduced potential for providing connectivity between ABB populations. If a proposed site cannot successfully meet the requirements to establish, manage, and operate as ABB mitigation lands, the Service will not approve the proposed mitigation land.

#### Cover Type/ABB Habitat

Greater than or equal to 95% of the proposed mitigation land property must be comprised of ABB suitable habitat. The following site characteristics cannot be included as ABB suitable habitat: wetlands; impervious surfaces; agricultural land that is tilled on a regular basis, planted in monoculture, and does not contain native vegetation; areas maintained at a height of 20 cm (8 inches) or less through frequent mowing or herbicide application or grazing; or areas dominated by non-native and/or invasive plant communities. Wetland areas may be used as buffer areas on mitigation lands.

#### American Burying Beetle Baseline Surveys

The ABB presence on the property will be determined by conducting ABB surveys. ABB surveys should follow the ABB Rangewide Presence/Absence Live-trapping Survey Guidance, found on our website at <https://www.fws.gov/arkansas-es/docs/2015%20ABB%20Survey%20Guidance.pdf>. Survey results will be used to establish an ABB baseline in the management plan, which will include a strategy to monitor ABBs. A current, valid positive survey is required for the proposed property unless an alternative to this requirement is developed in coordination with the ARFO prior to mitigation land establishment.

### Soils

The proposed property must contain sandy loam or silt loam soils characteristic of reproductive habitat. If available, USDA Natural Resources Conservation Service (NRCS) soil surveys can be used to determine soil type. A professional soil survey may be conducted for a more detailed delineation of soil types on a particular mitigation site. If an approved NRCS soil survey is not available, a soil survey of the prospective mitigation site is required to determine if this soil requirement is met.

### **Habitat Evaluation**

ABBs have been successfully live-trapped in several vegetation types including native grassland, grazed pasture, riparian zone, coniferous forest, mature forest, and oak-hickory forest, as well as on a variety of soil types (Creighton et al. 1993; Lomolino and Creighton 1996; Lomolino et al. 1995; USFWS 1991). Ecosystems supporting ABB populations are diverse and include primary forest, scrub forest, forest edge, grassland prairie, riparian areas, mountain slopes, and maritime scrub communities (Ratcliffe 1996; USFWS 1991). The ABB readily moves between different habitats (Creighton and Schnell 1998, Lomolino et al. 1995) and are considered to be feeding habitat generalists, but breeding habitat specialists (Anderson 1982).

### ABB Habitat Exclusions

While the ABB uses a wide variety of habitats, the Service currently believes that areas exhibiting the following characteristics will not be of conservation value to ABBs and will not be credited as mitigation, except as possible buffer areas. Areas exhibiting these characteristics should be excluded from mitigation lands because they are considered *unfavorable* for use by ABBs based on disturbance regime, vegetation structure, unsuitable soil conditions, and carrion availability:

- Land that is tilled on a regular basis, planted in monoculture, and does not contain native vegetation.
- Pasture or grassland that has been maintained through frequent mowing, grazing, or herbicide application at a height of 20 cm (8 inches) or less.
- Land that has already been developed and no longer exhibits topsoil, leaf litter, or vegetation.
- Urban areas with maintained lawns, paved surfaces, or roadways.
- Stockpiled soil without vegetation.
- Wetlands with standing water or saturated soils (defined as sites exhibiting hydric-soils,

and vegetation typical of saturated soils, and/or wetland hydrology). Areas adjacent to wetlands and/or riparian areas are not considered unfavorable for the ABB, as they may be important for ABBs seeking moist soils during dry conditions.

**Compensatory Mitigation Ratios**

Credits on mitigation lands and impacts at project sites should be determined by the following ratios unless a Conservation Plan with differing ratios has been approved by the Service.

Temporary Impacts

Temporary impacts affect ABB habitat for 5 years or less (areas impacted by the project are restored to a condition suitable for ABB use within 5 years of the original impact). Based on the climate and vegetation types of western Arkansas, the Service expects that most grass and shrub-dominated cover types can be re-established to their pre-impact condition within 5 years. When considering precipitation, soil compaction, and vegetation regrowth time in the ABB area in Arkansas, 5 years after the impacts occur is a reasonable timeframe for habitat to be restored to a condition suitable for ABB use.

Permanent Cover Change

Permanent cover change impacts change the successional stage of an area to a different stage (e.g., forest or shrubland to grassland; grassland to forest), resulting in habitat that is less preferable for ABB use. Permanent cover change areas will be restored to a condition suitable for ABB use within 5 years, but will be permanently maintained at a different successional stage (through vegetation control, tree planting, or suppression of natural vegetation).

Permanent Impacts

Permanent impacts eliminate ABB habitat (e.g., buildings, roads, quarries, strip mines) or take more than 5 years to re-establish suitable ABB habitat.

Mitigation ratios

Areas where impacts may result in greater magnitude of effects on ABB have higher mitigation ratios. Greater duration of impacts likely results in greater adverse impacts to ABB. Mitigation ratios increase as duration of impacts increase or are located within mitigation lands.

Table 2. Mitigation ratios for impacts to ABB. Ratio = acres of impact: acres of offset

Impact Duration	Location of impact		
	Tier 2 and ABBA (non-CPA)	Tier 1 (CPA)	Mitigation Land
Temporary	1:0.25	1:0.5	1:1.5*
Permanent Cover Change	1:0.5	1:1	1:2*

Permanent	1:1	1:2	1:3*
Mitigation Land ratio = Tier 1 ratio plus replacement of lost mitigation value			