



LeConte's Thrasher, photo by @Christina Kondrat-Smith

### Conservation Profile

Species Concerns	
Habitat Fragmentation (Urban and Energy Development) Recreational Activity	
Conservation Status Lists	
USFWS <sup>1</sup>	BCC List (BCR 33)
AZGFD <sup>2</sup>	Tier 1B
DoD <sup>3</sup>	Yes
BLM <sup>4</sup>	Sensitive Species
PIF Watch List <sup>5b</sup>	Red List
PIF Regional Concern <sup>5a</sup>	Regional Concern and Stewardship Species BCR 33
Migratory Bird Treaty Act	
Covered	
PIF Breeding Population Size Estimates <sup>6</sup>	
Arizona	6,000 ●
Global	71,000 ●
Percent in Arizona	8.45%
PIF Population Goal <sup>5b</sup>	
Recover	
Trends in Arizona	
Historical (pre-BBS)	Unknown
BBS <sup>7</sup> (1968 – 2013)	-4.03/year ●
PIF Urgency/Half-life (years) <sup>5b</sup>	
27	
Monitoring Coverage in Arizona	
BBS <sup>7</sup>	Not adequate
AZ CBM	Covered
Associated Breeding Birds	
Lesser Nighthawk, Loggerhead Shrike, Verdin, Black-tailed Gnatcatcher, Black-throated Sparrow	

### Breeding Habitat Use Profile

Habitats Used in Arizona	
Primary: Sonoran Desertscrub Secondary: Mojave Desertscrub	
Key Habitat Parameters	
Plant Composition	Saltbush, wolfberry, cholla, creosote (but usually avoids pure stands) <sup>8</sup> ; mesquite-acacia or other xeric wash trees for nesting
Plant Density and Size	Sparse shrubs without dense patches > 50 feet wide; shrub height usually < 8 feet, with few trees <sup>8</sup>
Microhabitat Features	Nest in thorny shrubs or cholla; undisturbed, sandy soils with leaf litter <sup>11</sup>
Landscape	Requires large areas (≥ 2,500 acres) of undisturbed desert <sup>8</sup> ; flat or very gentle slopes
Elevation Range in Arizona	
150 – 2,000 feet (Sonoran Desert); 1,800 – 3,240 feet (Mojave Desert) <sup>9</sup>	
Density Estimate	
Territory Size: 50 – 100 acres or more Density: Up to 1 – 2 pairs/100 acres <sup>8,10</sup>	

### Natural History Profile

Seasonal Distribution in Arizona	
Breeding	January – May <sup>9</sup>
Migration	Year-round resident
Winter	Year-round resident
Nest and Nesting Habits	
Type of Nest	Cup
Nest Substrate	Dense, thorny small trees or shrub (wolfberry); Crucifixion thorn, paloverde <sup>8</sup> ; cholla in Mojave
Nest Height	2 – 7 feet <sup>8,9</sup>
Food Habits	
Diet/Food	Arthropods and small lizards
Foraging Substrate	Ground, leaf litter <sup>8</sup>

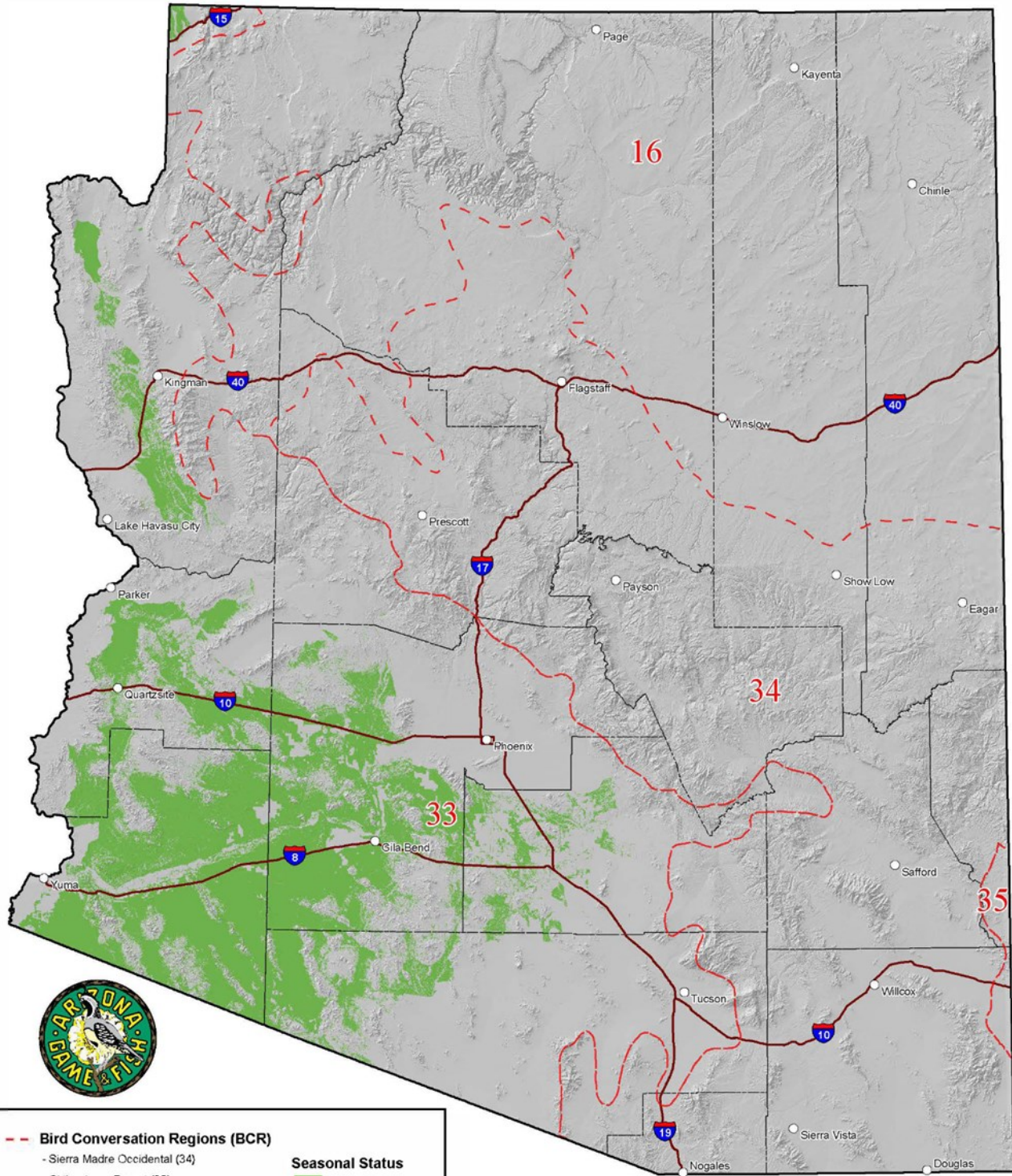
SPECIES ACCOUNT ● LECONTE'S THRASHER *Toxostoma lecontei*



Confidence in Available Data: ● High ● Moderate ○ Low ^ Not provided

Last Update: April 2023

# Distribution of LeConte's Thrasher



**-- Bird Conservation Regions (BCR)**

- Sierra Madre Occidental (34)
- Chihuahuan Desert (35)
- Sonoran & Mojave Deserts (33)
- Southern Rockies & Colorado Plateau (16)

**Seasonal Status**

- Year-round
- Counties

This map represents the predictive distribution for an individual species. AZGFD warrants no guarantees of accuracy or currency of the data represented.



SPECIES ACCOUNT ● LECONTE'S THRASHER *Toxostoma lecontei*

## General Information

### Distribution in Arizona

LeConte's Thrasher is a non-migratory bird that is endemic to four southwestern states in the United States and northwestern Mexico. LeConte's Thrasher's Arizona range is centered around the lower Colorado River Valley and is almost entirely restricted to the Lower Sonoran Desertscrub biome (Corman 2005). It also occurs eastward within the Gila River valley and north locally in Mojave Desert scrubland west of Kingman and within the lower Detrital Valley south of Lake Mead (Corman 2005). The densest concentrations of LeConte's Thrashers in Arizona occur in the Cabeza Prieta National Wildlife Refuge and Barry M. Goldwater Range (Corman 2005).

### Habitat Description

The LeConte's Thrasher is a secretive species that inhabits sparsely vegetated areas usually comprising creosote and/or saltbush on flat or gently rolling hills with shallow, braided washes. LeConte's Thrashers are most often found in landscapes with short, open stands of scrublands that feature specific shrub components. In Mojave populations, these shrubs can include saltbush, cholla, prickly pear cactus, and yucca (Fletcher 2009). Sites occupied by LeConte's Thrashers also often have creosote, but not usually as pure stands (Sheppard 1996). Around the Gila River creosote may be a dominant shrub species in LeConte's Thrasher territories (Monson and Phillips 1981). They also frequently use small patches of mesquite and other woody vegetation that occur in washes, especially for nesting, but only if open desert scrubland is also present nearby (Fletcher 2009).

LeConte's Thrashers nest in robust and often thorny shrubs or small trees that can support a nest approximately 1.8 – 6.3 feet above the ground (Corman 2005). LeConte's Thrasher nest site selection may be more driven by vegetation structure than plant species or diversity (Blackman et al. 2012). These thrashers average 2 – 3 nest attempts each year, often successfully producing young from all three broods, particularly following winters with above average precipitation (Sheppard 1996, Corman 2005).

### Microhabitat Requirements

LeConte's Thrashers may reach their highest densities in areas with scattered shrubs > 4 feet tall (Jongsomjit et al. 2012), however most shrubs rarely exceed 8 feet in height in occupied sites (Sheppard 1996). Typically the ground in LeConte's Thrasher territories is mostly bare, sandy, and has sparse patches of grasses and annuals < 12 inches tall. This species forages almost exclusively on arthropods sifted from leaf litter of desert shrubs (Sheppard 1996). Foraging areas are well-drained and often sandy, have bare ground areas that are not very rocky, but also have a well-developed litter layer (Sheppard 1996, Fitton 2008). In Arizona creosote is the predominant plant species in LeConte's Thrasher habitat, along with low growing shrubs that include cattle saltbush, bursage, graythorn, and wolfberry (Corman 2005). Trees and larger shrubs are typically sparingly distributed, but can include paloverde, ocotillo, smoketree, velvet mesquite, and ironwood. LeConte's Thrashers forage on the ground by probing with their long bills into the substrate in search of arthropods, including scorpions, spiders, beetles, grasshoppers, seeds, and even small vertebrates such as lizards.



## Landscape Requirements

The area requirements of this species are likely large but are unstudied. Densities of 1-2 pairs/100 acres have been found in occupied areas in California (Sheppard 1996). Large areas of otherwise seemingly suitable areas are unoccupied, suggesting that the minimum patch sizes for this species are among the largest of any songbird. It is possible that the species occupies areas based on availability of food resources at any given time in the annual cycle, thus a pair may require areas much larger than its annual territory to persist over time. In Mojave Desert populations, LeConte's Thrashers occur within relatively flat areas with slopes of  $\leq 5$  degrees such as valley bottoms near dry lake beds (Fletcher 2009).

Landscape management for LeConte's Thrasher should focus on areas that feature the vegetation required for microhabitats (see above) and manage these at a patch size of hundreds of acres or more.

## Conservation Issues and Management Actions

### Population Decline

LeConte's Thrashers are declining throughout the region of the Mojave and Sonoran deserts at a rate of 2.9% per year. While the data for Arizona alone are a little less reliable due to low sample sizes, they indicate the same trend (Sauer et al. 2016). Because a large proportion of the U.S. population of this species resides in Arizona, the state has a relatively high stewardship responsibility for this thrasher.

### Threats Assessment

This table is organized by Salafsky et al.'s (2008) standard lexicon for threats classifications. Threat level is based on expert opinion of Arizona avian biologists and reviewers. We considered the full lexicon but include only medium and high threats in this account.

Threat	Details	Threat Level
<b>Residential and Commercial Development</b> <ul style="list-style-type: none"> <li>Housing and urban areas</li> <li>Commercial and industrial areas</li> </ul>	Increasing housing and urban development	High
<b>Agriculture</b> <ul style="list-style-type: none"> <li>Annual and perennial non-timber crops</li> <li>Livestock farming and ranching</li> </ul>	Significant historical loss of habitat due to conversion to agriculture	High
<b>Energy Production and Mining</b> <ul style="list-style-type: none"> <li>Renewable energy</li> </ul>	Primarily conversion of open desert to solar fields	Medium
<b>Human Intrusions and Disturbance</b> <ul style="list-style-type: none"> <li>Recreational Activities</li> </ul>	Disturbance for this timid species can be locally high in areas with off-road activities	Medium
<b>Invasive and Problematic Species</b> <ul style="list-style-type: none"> <li>Invasive non-native/alien plants</li> </ul>	Increase in exotic invasive grasses and forbs may increase potential for wildfires	Medium
<b>Climate Change</b> <ul style="list-style-type: none"> <li>Ecosystem encroachment</li> <li>Changes in temperature regimes</li> <li>Changes in precipitation and hydrological regimes</li> </ul>	May affect breeding duration, productivity, and survival	Medium

In the following section we provide more detail about threats, including recommended management actions. Threats with similar recommended actions are grouped.

#### **Residential and Commercial Development:**

- Housing and urban areas
- Commercial and industrial areas

#### **Agriculture:**

- Annual and perennial non-timber crops
- Livestock farming and ranching

#### **Natural System Modifications:**

- Other ecosystem modifications

LeConte's Thrashers are area sensitive at a landscape scale and require large areas of habitat. Phillips et al. (1964) noted that they are intolerant of human activities. Habitat fragmentation is a high threat for this species. It may occur from habitat conversion to urban, agricultural, or industrial development, transportation and energy corridors, heavy OHV use, and catastrophic fires (Monson and Phillips 1981, Fitton 2005).

#### *Recommended Actions:*

1. Delineate and conserve the most important strongholds of LeConte's Thrasher occupied habitat at a landscape scale (patches of hundreds of acres).
2. Restore abandoned agricultural fields to native desertscrub vegetation, emphasizing plants important to microhabitat selection of LeConte's Thrasher.
3. Encourage contiguous and localized, rather than patchy, patterns for industrial, urban, and rural development in order to minimize habitat fragmentation.
4. Identify and conserve desertscrub corridors large enough to provide connectivity among LeConte's Thrasher subpopulations.
5. Establish shrub species that provide nest sites, protective cover, and large invertebrate populations.
6. Promote urban infill over urban sprawl with city and county planners by demonstrating the opportunity for undisturbed open space that can be enjoyed by the human communities.
7. Retain native Sonoran shrubland patches of greater than 2.5 acres, especially along shallow and braided washes and arroyos.

#### **Invasive and Problematic Species:**

- Invasive non-native/alien plants

Invasive, exotic grasses and forbs pose a problem to LeConte's Thrashers because they cover important foraging microhabitats (e.g., bare, loose soils and shrub litter layers). Increase in invasive and exotic species leads to an increase in wildfire frequency that destroys plants important for foraging, as well as shrubs that serve as nesting sites. Unsustainable livestock grazing can compound these problems, as native shrubs may be reduced from grazing while exotic weeds are maintained and newly disturbed soils promote the further invasion of weeds.



*Recommended Actions:*

1. Control invasive/exotic weeds in strongholds of LeConte's Thrasher breeding habitat, with the goal of maintaining bare ground and litter layers produced by shrubs.
2. Manage livestock grazing so as not to disturb or compact fragile, loose soils and maintain native shrub species.

**Energy Production and Mining:**

- Renewable energy

Expanding renewable energy development and infrastructure has destroyed LeConte's Thrasher habitat, particularly solar energy development in California and southern Nevada (D. Fletcher pers. comm.) In Arizona, especially within the lower Gila and Salt River valleys and the outskirts of the greater Phoenix area, there are similar concerns for future solar developments (T. Corman pers. comm.)

*Recommended Actions:*

1. Delineate and conserve the most important habitat areas of LeConte's Thrasher at a landscape scale (patches of hundreds of acres).
2. Develop and implement methods for estimating LeConte's Thrasher population impacts from solar energy development.
3. Develop or implement existing guidelines for siting and design of new infrastructure to minimize fragmentation of desert scrub landscapes.

**Human Intrusions and Disturbance:**

- Recreational activities

Motorized recreation in LeConte's Thrasher habitat leads to destruction or loss of needed soft soil substrates, litter layers, insect prey species, and shrubs that produce litter and insects, as well as those that serve as nest sites (Sheppard 1973). Preferred habitat for this species is also in areas preferred by OHV users (i.e. unobstructed travel, sparse and smaller vegetation).

*Recommended Actions:*

1. Delineate and conserve the most important occupied habitats of LeConte's Thrashers at a landscape scale (patches of hundreds of acres).
2. Restrict OHV use during LeConte's Thrasher breeding season and in occupied habitat year-round.
3. Develop and distribute public outreach materials that explain the fragility of the desert environment and the inadvertent damages that can occur with the use of OHVs.
4. Inoculate disturbed soils with material from surrounding biological crusts to hasten recovery time (often > 10 years if left to restore naturally).
5. Encourage use of established sites (e.g., trails) and roads for recreational use (Nicholoff 2003).
6. Employ exclosures or non-fence methods to prevent livestock/wildlife trampling.



### **Climate Change and Severe Weather:**

- Ecosystem encroachment
- Changes in temperature regimes
- Changes in precipitation and hydrological regimes

LeConte's Thrashers and their habitat may be particularly vulnerable to prolonged droughts from climate change, as these reduce plant vigor and insect availability. This species completely relies on its prey items for water (Sheppard 1996) and reduced prey and loss of plants that serve as nest substrates may quickly edge this species out of its already narrow ecological niche. Depending on winter and spring precipitation levels, temperatures, and food availability, LeConte's Thrashers may reduce the number of clutches per year. When drought continues into winter, egg-laying may not occur or nesting efforts may have limited success.

### *Recommended Actions:*

1. Target areas for LeConte's Thrasher conservation that are currently occupied and have at least ephemerally reliable water sources to maintain nesting and foraging microhabitats.
2. Prevent or minimize land uses that compound the degrading effects of prolonged drought on LeConte's Thrasher habitat quality.
3. Develop and distribute public outreach materials that explain the fragility of dry southwestern environments, the delicate balance between water need and availability in an extreme species such as LeConte's Thrasher, and the need for conservation action in light of climate change.

### **Research and Monitoring Priorities**

1. Delineate the occupied habitat of LeConte's Thrasher in Arizona.
2. Continue and expand monitoring of Sonoran Desertscrub species to facilitate trend estimation, or else conduct full population inventories of LeConte's Thrashers at regular intervals.
3. Determine minimum patch size requirements of LeConte's Thrasher, ideally using data from multiple years that include drought years.
4. Determine what influences LeConte's Thrasher dispersal and colonization.
5. Investigate approaches to desertscrub habitat restoration that include the microhabitat requirements of LeConte's Thrasher.
6. Study effects of prolonged droughts on LeConte's Thrasher prey base.
7. Study nesting behavior, daily time budgets over seasons, food and water requirements, structural analysis of occupied/unoccupied habitat, territory/home-range sizes in all parts of range, barriers to dispersal, methods for habitat restoration, interactions with other thrasher species, physiological and behavioral responses to high temperatures, and effects of drought on the overall population.
8. Determine extent of geographic variation in nearly all aspects of LeConte's Thrasher biology, particularly reproductive efforts, vocalizations, and population densities.
9. Study which environmental factors contribute most to thrasher fecundity and survival in large-scale landscape blocks where LeConte's Thrasher populations are robust.



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