**Key Bird-Habitat Attributes**

<table>
<thead>
<tr>
<th>Stand Structure</th>
<th>Multiple species of shrubs in a park-like setting of small to old-growth Joshua tree and Yucca stands; only old individuals of Joshua tree and Yucca useful to several priority species; healthy shrub understory and litter layer for foraging opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideal Scale for Conservation Action</td>
<td>200 ha (440 acres) or more</td>
</tr>
<tr>
<td>Understory and Invasive Species</td>
<td>Vigorous, species-rich shrub understory, ideally with flowering forbs and shrubs; invasive plants strictly discouraged</td>
</tr>
<tr>
<td>Fire Regime; Invasive Plants</td>
<td>Fire prevention best strategy; invasive plants increase fire intervals and should be managed aggressively in this habitat type</td>
</tr>
<tr>
<td>Distance to Riparian/Spring Habitats</td>
<td>Proximity of water-dependent habitat increases value to birds</td>
</tr>
<tr>
<td>Presence of Cliffs &gt; 30 m (100 ft) Tall</td>
<td>Presence of tall cliffs increases value to birds</td>
</tr>
</tbody>
</table>

**Conservation Profile**

<table>
<thead>
<tr>
<th>Estimated Cover in Nevada</th>
<th>Mojave Scrub total (Joshua tree portion needs to be determined later): 3,553,600 ha (8,781,000 acres) 12% of state</th>
</tr>
</thead>
</table>
| Landownership Breakdown  | BLM = 60%  
DOD = 15%  
DOE = 6%  
FWS = 6%  
NPS = 5%  
Other = 8%                                                                                                                                 |
| Priority Bird Species    | Burrowing Owl  
Gilded Flicker  
Costa’s Hummingbird  
Bendire’s Thrasher  
Le Conte’s Thrasher  
Black-chinned Sparrow (Golden Eagle)  
(Prairie Falcon)                                                                 |
| Indicator Species        | None needed                                                                                                                                 |
| Past Impacts             | Habitat Conversion  
Livestock                                                                                                                                 |
| Most Important Current Threats | Habitat Conversion  
Invasive Plants  
Climate Change                                                                 |
| Habitat Recovery Time    | 150-200 years                                                                                                                                 |
| Regions of Greatest Conservation Interest | Clark and Nye counties                                                                                                                                 |
| Important Bird Areas     | Wee Thump Joshua Tree Forest, Spring Mountains, Sheep Range, Lake Mead                                                                 |

Joshua Tree and Yucca landscape near Goldhill, Esmeralda County. Photo by Elisabeth Ammon.
Joshua Tree (Mojave Mid-Elevation Mixed Scrub)
Our “Joshua Tree” habitat category includes all Mojave mid-elevation mixed scrub that describes the Mojave scrub’s elevational zone supporting Joshua tree, other *Yucca* species, cactus communities, and a variety of higher-elevation shrub species. This habitat type is characterized by an enormous recovery time (150-200 years), meaning that destruction of a stand will take well beyond the current generation of bird conservation planners’ lifetime to restore back to the same condition. Any loss of Joshua tree/*Yucca* habitat should therefore be considered a complete loss for the purpose of this plan and the next few revisions of it, and the highest priority should be to avoid any losses of Mojave mid-elevation mixed scrub habitats to the extent possible.

A few species of Nevada are only, or mostly, found in Joshua tree/*Yucca*, including the priority species Gilded Flicker and Bendire’s Thrasher. For both of these species, it is important that the *Yuccas*, Joshua trees, or cactuses have reached a mature or old growth stage before they can be used for nesting.

Traditional threats to this habitat type included habitat conversion and impacts from domestic and feral livestock. Clark County has removed all domestic livestock from public lands, so this threat has been removed from much of Nevada’s portion of this habitat type. New threats include invasive plants, OHV recreation, and climate change, and threats from habitat conversion continue from urban development. Invasive plants are problematic, because they change fire intervals of upland habitats, particularly during drought conditions. In the mid-2000s, large stands of Joshua tree burned down from lightning-ignited fires, which were most likely facilitated by invasive plants and drought conditions. Therefore, our conservation strategies focus on maintaining native plant communities, minimizing habitat conversion, and light land uses.
Joshua Tree (Mojave Mid-Elevation Mixed Scrub)

Mojave Mid-Elevation Mixed Scrub (Joshua Tree - Yucca - Cactus)

Not To Scale

Black-chinned Sparrow

Gilded Flicker
Bendire's Thrasher
Black-chinned Sparrow

Sagebrush, Transition into Pinyon-Juniper

Associated plants:
Apache plume
Anderson desert thorn
diffuse manzanita

Joshua Tree - Blackbrush

Associated plants:
Joshua tree
Mojave yucca
cholla
blackbrush
disson cholla
grasses

Ephemeral Wash

Associated plants:
acacia
desert willow
Purshia
desert sage
flowering forbs and shrubs

Possible Indicator Species: Cactus Wren, Scott's Oriole

Le Conte's Thrasher
Costa's Hummingbird
Burrowing Owl

Yucca - Cactus - Creosote
Transition into Creosote-Bursage

Associated plants:
Mojave yucca
bushy cholla
barrel cactus
teddy bear cholla

Suitable Patch Size: >100 ha (220 acres)
Joshua Tree (Mojave Mid-Elevation Mixed Scrub)

Conservation Strategies

Habitat Strategies

1. Manage at landscape scale (> 200 ha or 440 acres). High species richness in shrubs, old-growth *Yucca* spp., and cholla cactuses are particularly suitable for birds.

2. Fire prevention is currently the most important stop-gap measure; in the long-term, fire management and invasive plant control may be coordinated across agencies to prevent frequent fires.

3. Joshua tree habitats are attractive to visitors, which may be encouraged through established trails, but unregulated OHV use should be discouraged.

4. Removal of Joshua tree, other *Yucca* species, and cactuses may be mitigated by replanting them in suitable areas, such as recently burned areas within the same habitat type. Large-scale conversions are, however, strongly discouraged.

Public Outreach

1. Promote public appreciation of healthy Joshua tree – *Yucca* habitats and bird communities, particularly with regard to native understory vegetation and threats from off-road vehicle recreation.

Research, Planning, and Monitoring

1. Joshua tree and *Yucca* stands of Nevada are not mapped, so no reliable spatial data are currently available. We recommend that Clark County’s Desert Conservation Program’s current effort to map these habitats in Clark County be expanded into Nye and Esmeralda counties through a multi-agency inventory effort.