



Ashe Juniper

It Isn't Just For Warblers

8 May 2024

2024 Ashe Juniper Symposium

Austin, TX



Wildlife and Ashe Juniper

- Habitat - basic principles
- Juniper systems
- Perceptions of juniper as habitat
- Species
- State of our Knowledge
- Considerations and Recommendations



Habitat Components

- **Food** - insects, plants, seeds, fruits, animals
- **Water** – dew, surface water, food
- **Cover** – thermal, escape, nesting, loafing/resting
- **Space** - home range
- Species-specific

Juniper as Habitat

Ecological Mapping Systems of Texas

Ashe Juniper Motte and Woodland

Riparian Ashe Juniper Shrubland

Ashe Juniper Slope Forest

Oak /Ashe Juniper Slope Forest

Ashe Juniper / Live Oak Slope Shrubland

Riparian Hardwood / Ashe Juniper Forest

Floodplain Ashe Juniper Forest

Floodplain Hardwood / Ashe Juniper Forest

Floodplain Ashe Juniper Shrubland

Riparian Ashe Juniper Forest

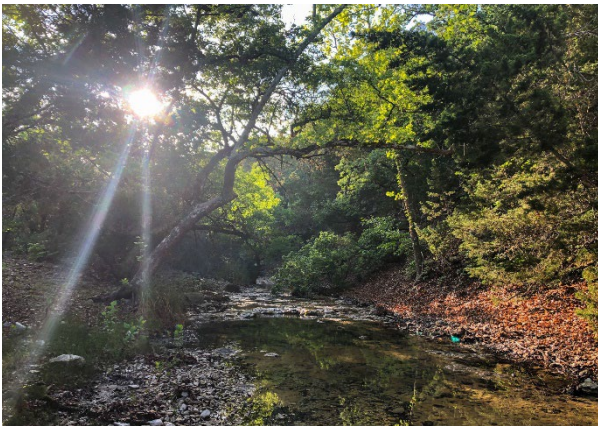
Native Invasive Juniper Woodland

Juniper Semi-arid Shrubland

Ashe Juniper / Live Oak Shrubland

Juniper Semi-arid Slope Shrubland

Native Invasive Juniper Shrubland



Juniper Systems

Perceptions of Ashe Juniper

Mostly Negative

- Increasing density of juniper (grassland context) creates a new state that is less productive for livestock and “wildlife”; little nutritive value, less productive (less grass, less grazeable area)
- Negatively affects habitat suitability for grassland birds with large areas requirements
- Dense stands of juniper also suppress the variety of desirable forbs and insects necessary for good “wildlife”/endangered species habitat
- Lower aesthetic value and biodiversity associated with dense cedar stands

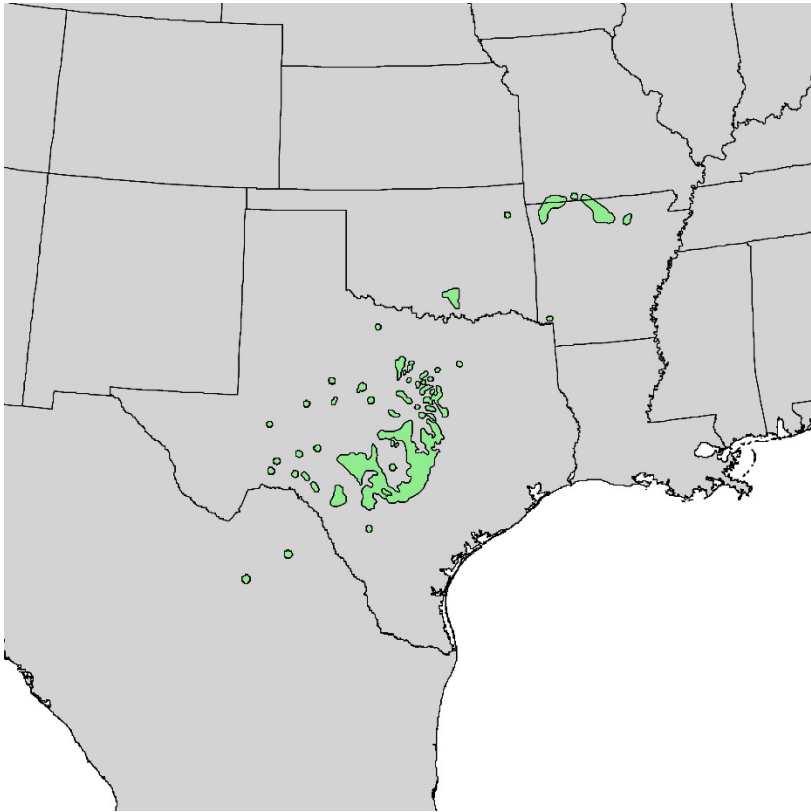
Some Positive

- Lower density, mature juniper provides habitat and food for a variety of wildlife
- Wildlife historically abundant in old-growth cedar brakes: Black Bear, Jaguar, Passenger Pigeon

Ashe Juniper is for Golden-cheeked Warblers

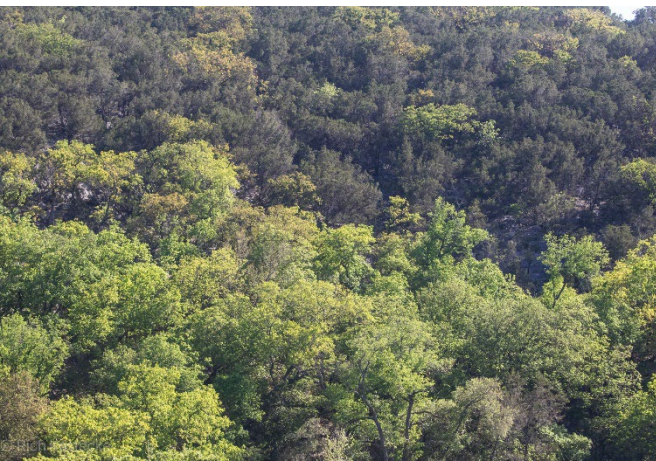


Approximate distribution of Ashe Juniper



Range of Golden-cheeked Warbler





- Habitat: Juniper AND oak woodland; peak density at ~65% juniper (Mueller et al. 2022)
- Needs the peeling bark of mature juniper for nest material; can build nest in any tree
- Feed in oaks early, juniper late; insects loads in juniper comparable to other trees
- Local/Regional dynamics in relation to juniper canopy cover (tree species richness, diversity, and juniper cover vary across regions).



Juniper Hairstreak
Callophrys gryneus

Juniper Obligates



Juniper Tip Moth
Glyphidocera juniperella



Juniper Budworm
Choristoneura houstonana



Despite “low nutritive value”, berries regularly consumed by nearly all mammals, as well as livestock



Berries utilized by a variety of birds and much facultative use of juniper as cover and home range

Wintering bird response to juniper encroachment in Oklahoma species specific – Coppedge et al. 2001

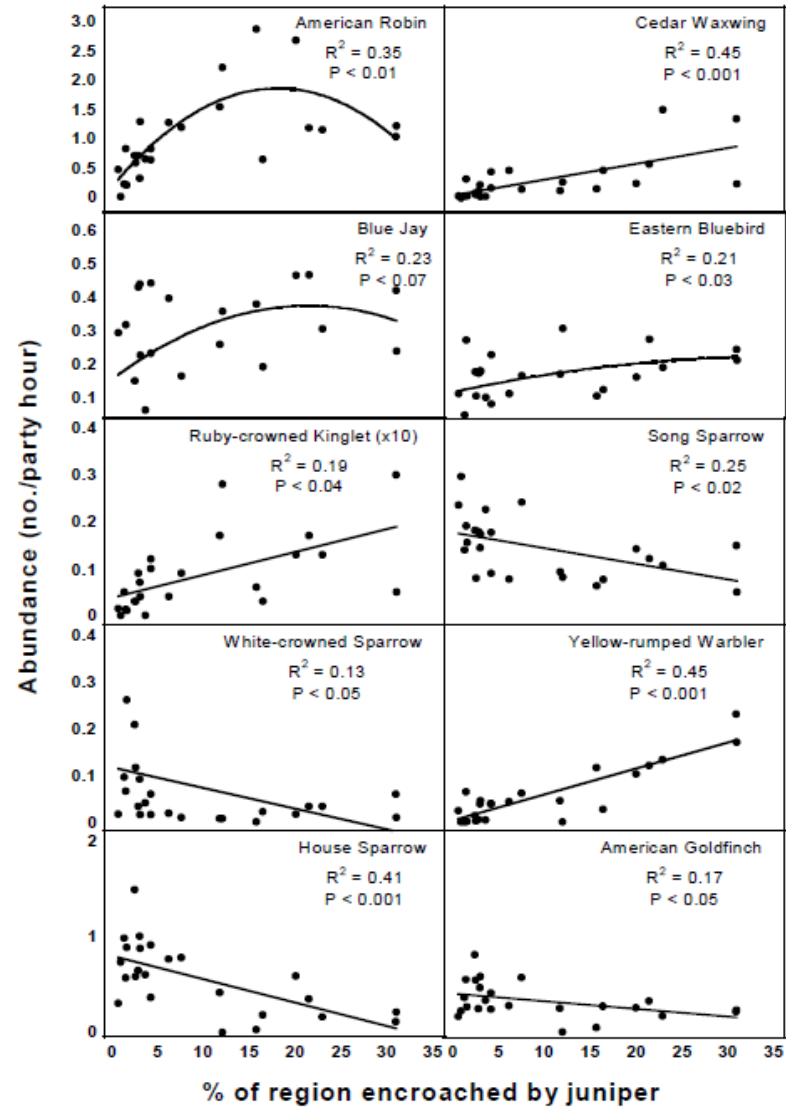


Figure 10.5. Results of regression models relating mean species abundance of passerines wintering in Oklahoma to regional juniper encroachment levels for the 1950-1994 time period.



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Negative Responses to Ashe Juniper

- Montezuma Quail select for low Ashe Juniper cover (<23% cover), density (<7 trees/80 m²), and height (<2m) in the Edwards Plateau - Stewart et al. 2021
- Black-capped Vireos select against dense juniper in some areas, but in other areas it can be an important aspect of habitat.



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White-tailed Deer (aka “Wildlife”)

- Juniper considered fair, at best, forage, but...
- Juniper common in deer diets (lots of studies), particularly when other browse limited
- Seasonally important
- Facultative use of juniper for cover



The state of our knowledge

- **Impact of juniper and its management only “well-understood” for a subset of species**
 - **White-tailed Deer and other economically important game species**
 - **Livestock**
 - **Golden-cheeked Warbler (endangered)**
 - **Shrub/Grassland obligate species**
- **Other species/taxonomic groups/guilds consistently under-studied**
 - **Reptiles**
 - **Terrestrial invertebrates**
 - **Brush/Woodland/Forest species**
- **Few if any community-level studies (i.e., diversity, community dynamics)**
- **Lack of quantitative baselines (within juniper systems and between juniper and other systems)**
- **Density can be a misleading indicator of habitat quality for species**

Considerations

- **Use and value of juniper depends on the wildlife species; we value some wildlife more than others**
- **Use and value of juniper depends on amount of juniper available compared to other plants, as well as the form and structure of the juniper**
- **Not all juniper is created equal (e.g., old-growth cedar brakes vs. monocultures of bushy cedar)**
- **Inherent tension - Less juniper (more open) favors grassland species, more cover favors brush/woodland/forest species; specialists vs generalists**
- **Managing for diverse values (diversity, T&E species and species of conservation concern, watershed management, game species, livestock production, aesthetics, fire management, etc.)**

Recommendations

- **Consistent monitoring protocols to facilitate greater understanding of how factors such as habitat type, treatment, patch size and configuration, location impact (+/-) diverse wildlife**
- **Multi-species conservation objectives**
- **Need for projects to experimentally assess the effects of juniper management on both target and non-target species**
- **Managing Ashe Juniper at a landscape level to provide its values where desired and to reduce its impacts where needed is the preferred, though difficult, approach to its management**
- **Use of regionally specific data to inform local management, especially for species that occur across a wide range of conditions**
- **Brush management for habitat/vegetation diversity (create mosaics, acknowledgement that some areas should not be managed)**

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