Costa's Hummingbird

Calypte costae

Photo by Scott Page

Habitat Use Profile

Main Habitats Used in Nevada	Mojave Scrub Joshua Tree Mesquite-Catclaw Mojave Desert Lowland Riparian Desert Springs [?]
Key Habitat Use Parameters	Occurs in a variety of primarily Mojave habitats [p4], where flowering plants are available Requires presence of mature woody plants (yucca, mesquite, acacia, willow, etc.) or cactus Preferred nectar plants include Bladderpod, creosotebush, various penstemons, squaw cabbage, desert-willow [p1] Post-breeding upward movements into pinyon-juniper zone [p1] Occurs in a broader array of habitats and situation during migration Proximity to water may be desirable, but relationship not confirmed
Minimum Patch Size	Not well-characterized, but probably at least 1 km radius [p1] Territories often contain several (3-10) large, nectar-rich flowering shrubs [p1]

Conservation Profile

Priority Status	Conservation Target
Reasons for Priority Status	Declines Possible threats
Other Rankings	Continental PIF: Watch List Audubon Watchlist: Yellow Natural Heritage: S3B USFWS: Bird of Conservation Concern (Mojave), Migratory BIrd BLM: None NDOW: Conservation Priority
Trends	Historical: No major changes in Nevada [p1] Recent: Appears to be declining in West since 1980 [i1]; Nevada trend unknown
Population Size Estimates	Nevada (NBC): 14,000 Global: 1,800,000 [p5] Percent of Global: < 1 %
Population Objective	TBD
Monitoring Coverage	Source: Nevada Bird Count Coverage and Adequacy: Fair
Key Conservation Areas	Desert springs, ephemeral washes, Joshua tree, and transitional habitats in Clark and Nye coutnies

Natural History Profile

Seasonal Presence in Nevada	Spring – summer A small number of birds may also winter in southern Nevada [EO]
Known Breeding Dates in Nevada	March – early July [s4, EO]
Nesting Habits	Nest placed in woody vegetation or cactus, relatively close (< 3 m) to ground [p1] Low breeding territory fidelity; site occupancy highly variable across years [p1]
Food Requirements	Nectar and arthropods [p1]

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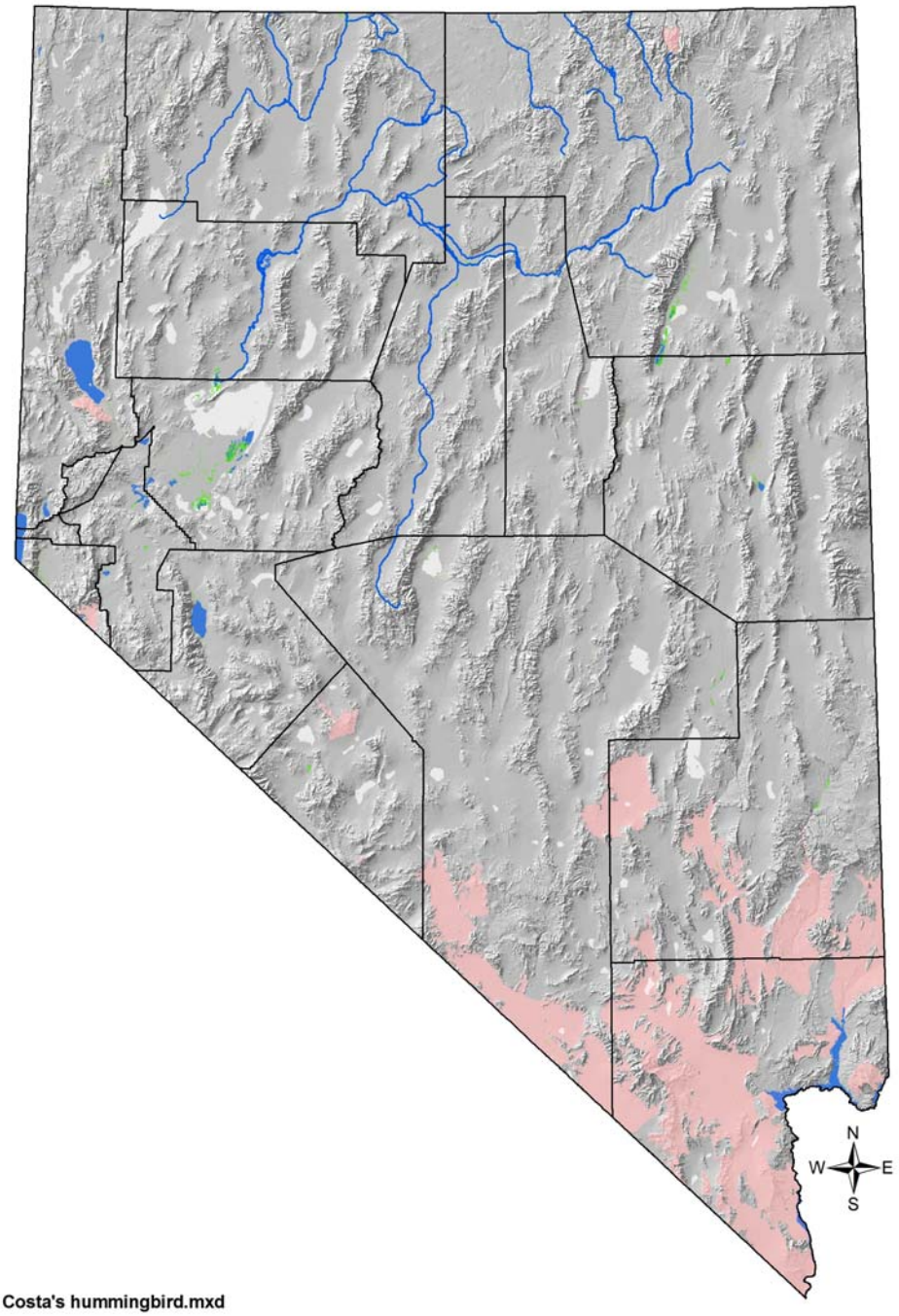

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Temporary Map Key

Pink: Breeding range
Hot pink / magenta: For some birds, breeding data was limited, and was supplemented by extrapolation to include likely breeding range. In these cases, hot pink represents known breeding range, and lighter pink the extrapolated breeding range.
Blue: Winter range
Yellow: Important migration stopover areas
Purple: Year-round range
Green: In some maps, wetlands mapped by SWReGAP are shown in green for interpretational purposes
Dot symbols: In cases where breeding records were isolated or very restricted in extent, they are represented by a pink dot symbol rather than a shaded area.
Arrows: Major migration routes. These are shown only for birds for which there are migration-associated conservation issues.

OVERVIEW

Costa's Hummingbird is traditionally regarded as a Mojave Desert bird in Nevada, but the Nevada Bird Count and the Nevada Breeding Bird Atlas project confirmed that it also occurs in lower numbers as far north as the Walker River Basin, and more recently, it was observed in Reno. This geographical pattern may represent either northward range expansion, or may simply be the result of increased survey and birding efforts. Costa's Hummingbird is found in a variety of habitat types, but unlike other hummingbirds, it does not commonly use urban feeders [p1], except for the small number of birds remaining in southern Nevada throughout the winter [EO]. This bird is probably declining in numbers, but as is usually the case with our hummingbirds, the causes of declines and the nature of threats are poorly understood.

ABUNDANCE AND OCCUPANCY BY HABITAT

- NBC Transects (percent column actually refers to **proportion** of transects occupied)

	% Transects Occupied (Mojave)
Coniferous Forest	0.25 (1/4)
Joshua Tree	0.25 (5/20)
Lowland Riparian	0.17 (6/36)
Mesquite-Catclaw	0.14 (2/14)
Mojave Scrub	0.14 (3/22)
Montane Riparian	0.22 (2/9)
Montane Sagebrush	0.33 (1/3)
Pinyon-Juniper	0.25 (3/12)

NEVADA-SPECIFIC STUDIES AND ANALYSES

Landscape Associations (NBC)

- Logistic regression p-values for the Mojave region (176 transects), see explanation below:

Veg Type (Proportion)	**Coef**	**S+4 only (logit)**
Mojave Scrub	**+**	**0.008**
Mesquite-Catclaw	+	0.262
Salt Desert	-	0.578
Sagebrush	-	0.278
Pinyon-Juniper	+	0.206
Montane Sage	-	0.414
Montane Riparian	+	0.668
Coniferous Forest	+	0.236
Lowland Riparian		0.972
DISTANCE TO WATER	+	0.422

- Listing of the 24 NBC transects with Costa's Hummingbirds present

TRANSECTID	HABITAT	COHU	Mojave Scrub	Riparian	Montane Riparian	Mesquite
LR-2046	Lowland Rip	5.1	63.6	25.5	.0	.0
MJS-480	Mojave Scrub	2.5	99.8	.0	.0	.0
JT-486	Joshua Tree	2.0	72.3	12.6	.0	12.3
LR-17806	Lowland Rip	1.9	55.2	34.7	.0	.0
LR-LAME6	Lowland Rip	1.4	46.5	12.4	.0	29.7
LR-24688	Lowland Rip	1.3	48.4	43.5	.0	.0
MQC-75172	Mesquite	1.3	14.6	.6	.0	70.7
MJS-4285	Mojave Scrub	1.0	82.6	16.8	.0	.0
MJS-471	Mojave Scrub	.8	90.8	6.3	.0	.0
JT-54	Joshua Tree	.5	82.6	14.8	.0	1.2
LR-3811	Lowland Rip	.4	43.8	18.6	.0	.0
PJ-181	Pinyon-Junip	.4	73.5	7.4	.0	.0
MSG-67	MontaneSage	.3	96.0	2.2	.0	.0
PJ-181A	Pinyon-Junip	.3	73.6	5.6	.0	.0
PJ-5979	Pinyon-Junip	.3	23.1	4.3	.0	.0
JT-337	Joshua Tree	.3	91.0	9.0	.0	.0
JT-74	Joshua Tree	.3	87.5	12.4	.0	.0
LR-LAME5	Lowland Rip	.3	48.1	11.2	.0	6.8
MQC-3NEIL	Mesquite	.3	30.2	5.5	.0	25.9
JT-28	Joshua Tree	.2	92.4	.0	7.6	.0
MR-POINTOFRO	Lowland Rip	.1	19.6	38.7	.0	.0
CF-560	Coniferous	.1	.2	.0	.0	.0
MR-639	Montane Rip	.1	2.7	.0	26.6	.0
MR-640	Montane Rip	.1	.5	.0	13.1	.0

- On a landscape scale, Costa's Hummingbirds are most strongly associated with the presence of Mojave Scrub habitat
- However, examination of raw transect data suggest that most transects with Costa's Hummingbirds have both a large Mojave Scrub component, in conjunction with a significant riparian or Mesquite-Catclaw component
- This supports the potential importance of proximity to water or to the flowering plants associated with moist habitats

MAIN THREATS AND CHALLENGES

- Current threats include water diversions and groundwater pumping, invasive plants, and destruction of habitat by fire or heavy grazing
- Climate change may be causing major shifts in distribution, but nature of impacts to the species currently unknown
- Likely less able than other hummingbirds to adapt to alternative food sources, such as feeders and urban/suburban plantings

CONSERVATION STRATEGIES

Habitat Strategies

- General Desert Springs conservation strategy
- Areas with well-developed flowering shrubs and forbs located near springs or other water sources should be protected from heavy grazing by livestock or feral ungulates

Research, Planning, and Monitoring

- Continue monitoring coverage to better determine population size and trends in Nevada
- In areas where groundwater pumping occurs, monitor spring flow and persistence of flowering forb and shrub communities
- Develop strategies to attack fires that threaten desert spring vegetation

OTHER SPECIES WITH SIMILAR STRATEGIES

- Abert's Towhee
- Lucy's Warbler

FURTHER READING

- TBD

Temporary codes for standard references

[p1] Birds of N. America account for this species
[p2] NV Bird Conservation Plan ver. 1 (Neel 1999)
[p3] NV Wildlife Action Plan
[p4] Nevada Breeding Bird Atlas
[p5] PIF N. American Landbird Conservation Plan (Rich et al 2004) (NOTE:
[p6] Intermountain West Regional Shorebird Plan (Oring et al 2003)
[p7] Pacific Flyway reports
[p8] Shrubsteppe Landscapes in Jeopardy (Dobkin and Sauder 2004)
[p9] Birds in a Sagebrush Sea (Paige and Ritter 1999)
[s1] NBC-based population size estimates
[s2, s3] NBC-based habitat relationship analysis
[s4] Breeding Bird Atlas breeding phenology data
[i1] BBS trends analysis (Sauer et al 2005)
[i2] NV Upland Game Management Plan (Espinosa et al in prep.)
[i3] Western Quail Management Plan (Zornes et al 2008)
[i4] NDOW Shorebird and Waterbird monitoring data (Neel)
[i5] Brad Andres IMJV Shorebird / Waterbird data set
[i6] GBBO Technical Report 08-01 (2008)
[EO] Expert opinion from NVPIF group members
[IWWCP] Intermountain West Waterbird Conservation Plan
[NAWCP] North American Waterbird Conservation Plan
[LBCUSACP] Long-billed Curlew Status Assessment and Conservation Plan
[USSCP] U.S. Shorebird Conservation Plan
[WHSRN] Western Hemispheric Shorebird Regional Network