

Nesting behavior of the 'Akikiki or Kaua'i Creeper

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Kaua'i endemic in decline

The 'Akikiki is

- Hawai'ian honeycreeper (Drepanidinae) endemic to the island of Kaua'i

Virtually unknown to science

- First described in 1887¹, mentioned in a few publications
- Never the focus of an independent research study

Variously known as

- 'Akikiki • Kaua'i Creeper • *Oreomystis bairdi*

With an alarmingly small population size

- 1312 ± 530 (SE) as of 2007²

In precipitous decline

- 80% decrease in numbers since 1970³
- Range has decreased by 64%, restricted to high elevations of Kaua'i

Yet not on the U.S. Endangered Species List

- Candidate for listing since 1994
- Considered Critically Endangered by the IUCN⁴

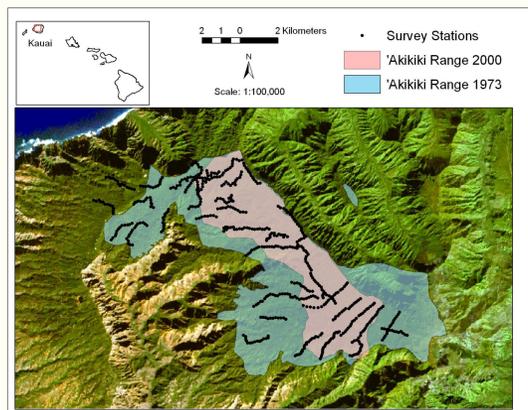


Figure 1. Like Kaua'i's other seven species of native songbirds, the 'Akikiki's range has contracted to the central Alaka'i Plateau over the past 35 years.

Fieldwork

Study Area

- Alaka'i Wilderness Preserve, on public land
- Disease, invasive plants and mammals are the greatest threats
- Range size < 40 km², less than 3% of Kaua'i's land area

Nest Observations

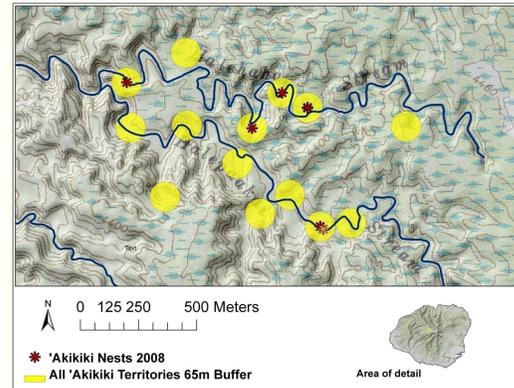
- Most nests found along trails and streams during other work
- 2 found in 2007, 6 found in 2008
- Active nests observed every 1 to 3 days
- Total of 113 hours of observations
- Fates of 8 nests determined
- Behavioral observations of a single color-banded pair



Findings

1. Spacing

Figure 2. Main study area, central Alaka'i Plateau, Kaua'i



Territories

- 14 territories known in study area (some probably missed)
- Min. convex polygon of study area = 0.58 km
- Minimum density of 24 terr./km²

Extrapolated to entire range:

- ~869 Territories
- Assuming an even distribution across range

2. Reproductive Success



Table 1. Measures of reproductive success as observed from 8 nests throughout the entire Alakai Plateau.

Parameter	Value	Sample size
Brood size	2	3
Nest success	88%	8
Double-brooding	Yes	8
successful	2	3
failed/abandoned	1	3

3. Male Investment

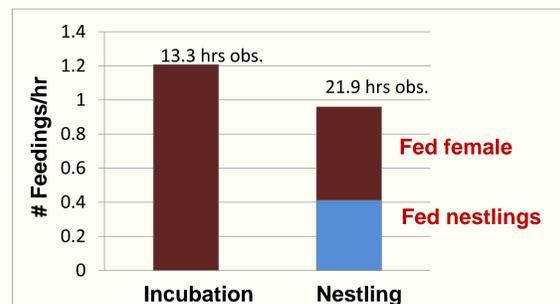


Figure 3. Male feeding rate compared to nest stage. Male contribution was roughly consistent throughout the nesting cycle in color-banded pair.



Conclusions

- Territory density was high within the study area. However, the assumption of an even distribution of territories across the 'Akikiki's range is probably erroneous, based on the high impact of invasive species at the edge of the current range.
- 'Akikiki reproductive success was high within the study area. The survivorship of fledgling young is still unknown.
- Male 'Akikiki participate in care of young throughout the nesting cycle. They also participate in post-fledging care of the young.
- Double brooding, rare in other honeycreepers, indicates reproductive potential may be high.



Future directions

More life history information is needed. The connection between forest structure and 'Akikiki nesting success is not known. Further study of this species is crucial in both high quality habitat and at the edge of its range to determine factors limiting population size.

Captive propagation may be an option. Simple behavioral ecology may help us to better prepare for any potential captive propagation strategy in the face of continued decline in the population.

Active habitat conservation is required, to stem the tide of forest change that has left so much of the Kaua'i's endemics in peril. This can only be accomplished through active habitat management and partnerships between the State of Hawai'i and organizations like The Nature Conservancy, the Kaua'i Invasive Species Committee, the National Tropical Botanical Garden and the Koke'e Resource Conservation Program.

References

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