



What the Flock??

Part 3

Managing the Chaos of Kea!

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Title slide

A. Kea Ecology & Natural History

B. Cincy Kea Breeding Program

- 1. Past Attempts with forced pairings**
- 2. Different enclosures and nest box designs**

C. Flocking

- 1. Benefits**
- 2. Challenges**

D. Current Breeding Program

- 1. The Future!**

Presentation Outline



Kea are endemic to the South Island of New Zealand and are closely associated with mountain beech and lowland forests. Their environment is extreme and extensive and although they are predominately associated with lowland and mountain forests, they are also found foraging in high altitude alpine meadows and slopes. Strong flyers, they are often seen catching the mountain thermals and flying across the tops of snow covered peaks over 2,000 meters high. Photograph of kea nest in the wild is courtesy of the Kea Conservation Trust in New Zealand and their partnership with NZ Department of Conservation.

Kea Natural History



- World's only alpine parrot
- Opportunistic omnivores and ground nesters
- Cognitive abilities that rival that of primates including tool use and the ability to work cooperatively for the same goal.
- Highly social, neophilic species
- Spend much of juvenile and young adult life flocking with other Kea

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Natural nest site



1. Ground nesters and are generally considered monogamous.
2. Highly gregarious species forming large flocks with as many as 20 birds during the summer periods.
3. Once adults reach breeding age (3-4 years) they tend to leave the main flock and pair up for breeding.

What do we know specifically about Kea breeding and nesting in the wild? We know that they are a ground nesting species, that they prefer to nest in naturally formed cavities. We know that Kea are a highly gregarious species in the wild, forming large flocks with non-linear hierarchies. Studies in Arthur's Pass observed large groups of around 20 first year birds during the summer period. These large flocks were then seen to disperse into groups of 2 -6 in autumn. As they mature, kea in their 2nd and 3rd years continue flocking in a mixed group, learning about their environment and social structure. Once adults reach breeding age (3-4 years) they tend to leave the main flock and pair up for breeding (Jackson, 1963; Jackson, 1960). Pairs are generally considered monogamous. Photograph of kea nest in the wild is courtesy of the Kea Conservation Trust in New Zealand and their partnership with NZ Department of Conservation.

Past Attempts

Pairings:

- Forced but switched up the mates

Enclosures:

- Inside holding rooms

- Outside mesh enclosures

Nest boxes:

- Elevated, wall mounted, vertical nest boxes

- Ground (horizontal) nest boxes

After the kea were acquired and settled in Cincinnati, pairs recommended to breed by the Species Survival Plan (SSP) were set up in isolation from other kea. For five years, we attempted to stimulate breeding in different ways: by switching mates, by switching enclosures, by changing nest box orientation, and by changing from indoor to outdoor holding areas...all to no avail. The propagation of these arranged pairs was unsuccessful.



In 2011, after much discussion, the decision was made to integrate all of our individual kea into one flock. This idea was based upon the natural behavior of kea flocking in the wild and also the historical successful propagation of other social parrot species (such as macaws) by housing them in large enclosures with multiple potential mates. I should also mention that flocking Kea specifically, has been done successfully for many years at Vienna University in Austria. Flocking our kea gave each bird the opportunity to choose their own mate, mimicking a more natural courting and pair-bonding scenario.

Benefits of Flocking



- Birds are given the option of choosing their own mates.
- Gives opportunity for developing stronger pair bonds.

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Benefits of Flocking



- Mimics natural behavior in the wild of being social during the non-breeding season, and not during breeding season.

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Breeding Success



But, by far the biggest benefit of flocking our kea has been the production of chicks! Pictures of female on eggs and hand reared chicks at different stages of development.

Chicks!



Over the last three years the CZBG has successfully hatched 13 kea chicks.

Benefits of Flocking



Another huge benefit of flocking, particularly with Kea, is the potential for nursery, hand-reared chicks to learn natural behaviors from adults in the flock when they are reintroduced. Kea will show preferential treatment towards juveniles, submitting to the growing young when food is offered. At this point, we have experienced multiple years of chicks being re-introduced to the flock, and our adult birds have proven to be extremely accepting towards them. Flocking offers a chance for sub-adults and juveniles to learn important social skills, foraging and breeding behaviors from adults, just to name a few.



Video of Jack (Adult Kea) and MacGyver (Juvenile) playing, demonstrating the accepting behavior of adults towards juveniles.

Challenges of Flocking:

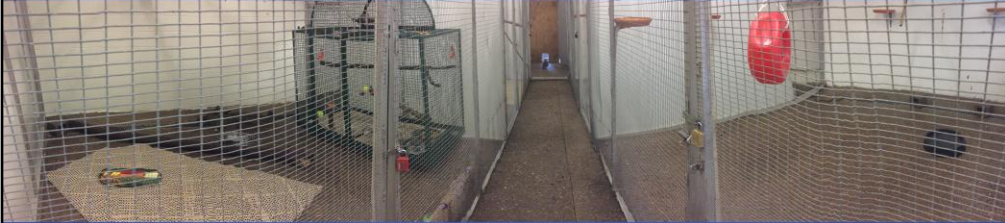
- Necessity for a enclosure large enough for multiple birds of different temperaments and sexes to get along.
- Necessity for a large enough space for multiple breeding pairs to defend their nesting area without interfering with the territory of other pairs.
- May include a long introduction process.
- Possibility of birds choosing siblings or non-recommended mates.
- Possibility of spread of disease throughout the whole flock when all have access to one another.

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Picture of Cincinnati's large outdoor kea flight enclosure. Thankfully, we had the resources available to us to relocate all our pairs into one large area. This outdoor flight aviary, being roughly 120' x 50' x 40' was formerly a Lorikeet feeding aviary. In 2013, we were able to convince management to convert it into a Kea flight, interpretive, interactive, and breeding area. And similar to Kea flights in New Zealand, we have been able to successfully house other parrot and waterfowl species with our flock.

Introductions: Slow & Steady



- Auditory Contact
- Visual Contact
- Supervised Physical Contact
- Complete Introduction

Any introduction should be taken very slowly and deliberately, gradually increasing the amount of contact birds have with one another. The process of introduction we have used in the past: starts with auditory contact, then visual but separated contact, supervised physical contact for increasing amounts of time, and finally unsupervised contact. Each step along the process the amount of time begins short and increases. We begin all introductions in our indoor holding area, where birds can be held across the hall from one another to familiarize themselves to others.

Challenges of flocking

- More birds present, more distractions, and possibly more nest interference.
- Necessity to find ways/places to deal with particularly aggressive birds.
- Aggression from multiple females in one large enclosure.
- Aggression from yearlings to fledglings upon re-introduction back to flock (after hand-rearing).
- **NEED TO BE FLEXIBLE!** Best laid plans often go awry! Plans may need modifying based upon the birds' behaviors.

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Change in Nest boxes

Single Chamber



Double Chamber with Tunnel



In our large outdoor flight, the kea flock is provided with multiple nest boxes for each female to choose from. Our nest box design has been modified over the years as well. Initially, nest boxes were one large chamber, but due to egg breakage by other intruding kea, a new design was implemented. The new design added an additional chamber to the nest box as well as a long tunnel type entrance. This has provided more security to incubating females alerting them to intruders, thus reducing potential egg breakage.

Shelter Boxes



We have also just this past year, added non-nesting boxes for shelter areas for the sub-adults and juveniles residing in the large flight with our breeding pairs. This offers a sheltered space for the inquisitive young to go, but it seems they figure out rather quickly to stay clear of the breeding mommas.

The Future for Flocking Parrot Species



What does this all mean? For Cincy, with the increased production of kea offspring, our challenge is now to find a few good facilities to join in our kea chaos! Since this species does rather well in juvenile groups and bachelor groups, the next step in our project is to find facilities that are willing to take on some juvenile kea flocks. And once breeding pairs are solidified and successful in a flock setting, then these pairs then could be moved to other facilities as well. The challenge for all of us in this room, is to think outside the box and consider consolidating other parrot species (not only kea), into facilities with the ability to flock for possible increased breeding success.

Contact Information



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Thank you to Joe and Jessica for allowing me to speak today, and to our Bird House photographer, Cassie Crawford for all the great photos!
Presenter contact information.

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CZBG Interactive Kea Puzzle. Public inserts quarter at the top and birds and people work together to move quarter down to the bottom of puzzle through a series of spins, slides and of lifting levers. Creates a great memorable guest experience, provides enrichment for the kea, and all money collected goes straight to our in-situ conservation partnership with the Kea Conservation Trust to protect and preserve Kea in the wild.



More puzzle pictures

