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Thick-billed Parrot Conservation in the USA: Exploring the options

A proposal brief presented to Arizona State Game and Fish Department intended to build on the work of Noel Synder and complement the USFWS Thick-billed Parrot Recovery Plan Addendum.

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WORK IN PROGRESS

This summary proposal will have some minor changes compared to other versions – please contact us with any questions!

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I. Introduction

Justification for this proposal

The Recovery Plan Addendum section 1.8.1 and Snyder et al, (1994), state that the initial thick-billed parrot reintroduction program did not succeed due to predation and because captive bred birds had deficient survival skills. For this reason, the final recovery plan states that any sort of release of birds within the USA should be done as a translocation (using wild caught birds from Mexico). However, the plan also identifies that populations in Mexico are imperiled and current Mexican law (General Wildlife Law Decree 60 Bis 2) bans the exportation of all parrot species, and it is not evident that an exemption exists under the legislation to allow for translocation of birds into the U.S. So as a result, the recovery plan addendum leaves no readily apparent way to facilitate reestablishment of the species in the United States. The addendum identifies a need for further evaluation, *"Although translocations are recognized as a conservation strategy, their feasibility, appropriateness, and possible approaches need further evaluation (page 45)."* The need to evaluate translocation appropriateness meshes with the stated goal to *"Identify broad actions necessary to address conservation of the species within its U.S. historical range."* In addition, the plan has a recovery action which calls for the following: *"Support research efforts to evaluate techniques for translocating parrots for the potential establishment or reestablishment of new populations."*

Given the limited feasibility of translocation, this project proposes to work with domestically produced captive bred birds and develop techniques that reduce predation and increase survival skills. Such research could one day create birds suitable for release in to the wild.

Current status in captivity and the wild

The existing populations of Thick-billed Parrots (*Rhynchopsitta pachyrhyncha*) are in danger of extinction. According to the IUCN and Birdlife International, the species is globally endangered and in "rapid" decline. Published estimates are 2,000-2,800 mature animals. Mexico and United states both recognize the species as endangered and its peril is recognized internationally through it CITES Appendix I listing. (Birdlife International 2013)

Unfortunately for this species, it is difficult to work in the field with thick-billed parrots due to drug related violence. In fact, areas where thick-billed parrots occur have extensive travel warnings from the U.S. State Department (travel.state.gov/travel/cis_pa_tw/tw/tw_6033.html). From interactions with our Mexican peers, we know that Mexican researchers are wary of field work.

In the U.S. there is a captive population but it is declining with a history of near zero annual reproduction, and is likely unsustainable at 83 animals, many aging. (2012 Thick-billed parrot Studbook kept by the Association of Zoos and Aquariums.) Several reasons for the failure to establish a captive

population are possible: No conservation projects utilizing captive thick-billed parrots exist so there is no reason for zoological parks to breed them. Under the Endangered Species Act, no captive thick-billed parrot can be sold across state lines and many states require special permits for keeping them in captivity, so private professional breeders with a passion for the species cannot cover the costs of breeding. So, it is reasonable to think that the captive population of this species will continue to decline (perhaps to extinction) in the U.S. View interactive sightings map at www.arizonaparrot.com

The need for research

Reintroduction science is complex. Currently, only 7% of bird reintroduction projects are successful (Ewen et al, 2012) indicating a need to improve the techniques used in reintroducing species. Among parrots, researchers (including supporters of this current initiative with the Thick-billed Parrots) have worked to identify the methods that have contributed to success (White et al 2012). These methods include predation mitigation, habitat quality, **predator aversion training,** and post-release supplementation. Research is needed to improve success of reintroductions, especially ones that use captive reared birds. Predator mitigation has been found to be a leading factor for project success. The current state of the art in predation aversion training (pioneered by project collaborator Thomas White) is by having release candidates watch simulated hawk attacks (White et al 2012).

Research goals

We wish to study if pre-release behavioral preparation can lead to birds that function in their habitat like a wild flock. By exposing the birds to increasingly complex environments during their development from fledgling to adult, we believe birds can gain wild skills as is done in nature, without large aviaries and complicated training scenarios. After gaining skills, the birds will be returned to captivity.

II. Project participants

The project team is broken up into three areas. Research, project development, and education; veterinary oversight; and reintroduction science.

Research, development, and Education

Chris Biro, Executive Director of Bird Recovery International

Role Chris will work on the ground with the birds, overseeing the project and data gathering during thick-billed field work. Prior to field work he will work with partners in aviculture to increase the captive thick-billed parrot population and support preliminary research. Chris

will fundraise and use his public prominence in international aviculture to create discussion and large-scale development of the techniques suggested in this proposal in order to create better knowledge and understanding on a global scale.

Background Chris Biro has been training parrots professionally since 1993, developing his unique U.S. and Honduran shows in which equipment-less parrots roam freely and self-directed for multiple hours. He is internationally recognized as an expert in free flight training parrots for independence in wild ecosystems and provides online and in-person workshops internationally. He is personally quite familiar with flying as a Veteran U.S. Army paratrooper! Chris has been an invited speaker at the American Federation of Aviculture (AFA) Conference, National Parrot Rescue & Preservation Foundation (NPRPF), International Association of Avian Trainers and Educators (IAATE) Conference, and Parrots International Symposium. He has also presented seminars in France, Portugal and the Netherlands.

Constance Woodman, Vice President Bird Recovery International

Role Preliminary field research and community connections. Constance will gather preliminary data using species that are common to aviculture as part of a supervised graduate research project to confirm the results with the two successful Biro flocks. She will participate in fund raising and public education throughout the process.

Background Constance has worked professionally in conservation since 2001. She is particularly interested in the transition of animals from human environments into wild environments. Relating to that area of knowledge she has successfully participated in the breeding, rearing, and release of extirpated native owls under government permit, as well as practiced licensed rehabilitation of human impacted wildlife for release, particularly with birds. She personally free flies her companion parrots outdoors and has been working to integrate Chris' free flight techniques into the conservation community since they wrote their first paper in 2008. She has a strong background in citizen science through public participation, having developed conservation education programming with museums, zoos, institutes, two universities, and a National Park. She possesses a specialized master's degree in Experiential Education in Environmental Science.

Veterinary oversight

Dr. Susan Club, DVM

Role Susan consults on disease and veterinary protocols to ensure healthy animals and ecosystems in which they interact. She is also personally supervising thick-billed breeding with the Jungle Island zoological facility partner via her Hurricane Aviaries, Inc.

Background Susan has a diverse background of work with conservation projects and the aviculture community. She has personally bred many species of parrot and has impressive vitae regarding the specialized area of Board Certified avian medicine. Her background includes work with conservation groups internationally including the Loro Parque Foundation. Additionally, she is very familiar with the health concerns and regulation regarding transporting birds, having worked for Pet Farm Inc., a major import company.

Reintroduction science

Dr. Thomas White, PhD., USFW, Puerto Rican Parrot Recovery Program

Role As a practicing expert in the field of parrot reintroduction Thomas will consult for and recommend research methods, guide reaching out to the scientific community, and offer authorship to publications as appropriate. His experience, critical analysis, and intuition are central to moving experiences with the two successful "pilot flocks" into conservation and directing future research efforts.

Background Thomas White has extensive field experience rearing, preparing, and releasing the critically endangered Puerto Rican amazon parrot, in the United States. He has a depthful understanding of ecology, human-based phenomena, and parrots. His research, covering several parrot species, includes predator pressures affecting nest site selection; habitat selection in human-fragmented ecosystems; invasive species interactions with released birds, best practices in captive release programs; and perspectives of local populations regarding endangered species. He has developed pre-release preparation training including acceptance of telemetry and predator aversion.

Dr. Donald Brightsmith, PhD., Texas A&M University

Role Donald will provide science advisory similar to Thomas White. Donald will also oversee the preliminary research carried out by Constance Woodman. He will offer analysis and expertise in research design and data review.

Background Donald has extensive experience with neotropical parrot conservation, including studying best practices and his own successful release efforts with scarlet macaws with the Tambopata Macaw Project. He has also researched the connections between conservation and education, and can advise elements of outreach and community connections to this project. Additionally, he has knowledge in specific areas relevant to this project including parrot foraging in human modified landscapes, supplemental feeding of released birds, telemetry, and introduced parrot populations in the United States. He has published extensively and has connections throughout both academia and aviculture that can inform and help propel this project.

III. Methods and expected results

Pilot flock methods and results

Using a "systematic exposure to the environment" that has gained traction in professional and conservation communities. We believe our proposed approach will be successful because it has been tried in a pilot project with three flocks of parrots, two raised using our systematic exposure system

(Biro & Woodman 2008; Biro, Hartman, Layman 2009) and one of adults who were strong flyers but not reared using the system. The pilot project examined this process with 15 different species and 52 individual parrots since 1997. Total time flying days from all these birds is 193 years. Because of our past experience we are in a strong position to be able to adapt to the individual needs of the thick-billed parrot. Our only wild predator loss during the pilot flocks is a suspected bobcat loss of a single adult bird in the least successful "adult flock," which was disbanded to aviaries after low skill acquisition. We experienced 5 escapes while birds were free flying in wild habitat.

We are examining the use of telemetry to prevent losses during early skill building, and examine our previous loss records to identify trends.

We will be pursuing a preliminary study using a non -thick-billed parrot species to very these results in a reproducible fashion while the thick-billed parrots we wish to work with are being bred.

Expected results

We expect to produce a flock that can fly, flock, feed, and avoid predators. This flock will remain under human control through supplemental feeding and social bonding with the handler. Based on the numbers generated in the pilot flocks, if we train a total of 10 birds, this should result in a total of 0.09 escapes and 0.018 birds being taken by predators. These values are extremely low, and application of telemetry during early outdoor flight should eliminate escape.

We anticipate that we will need to adjust protocols for this species as they have not been worked with before in this manner. We feel we will be able to adapt our previous methods and succeed with the support of project collaborators and the Bird Recovery International Advisory board.

Methods

The number of thick-billed parrots used will be variable based upon sustainable captive production. We wish to work with 4 to 15 thick-billed to create a flock of 15 birds. Because vigilance ("many eyes") is necessary for survival of flock animals, if less than 15 birds are available the flock will augmented by birds from another species. Based on pilot flocks we believe that 15 is the minimum number that offers safety.

The timeline for this project is a minimum of one year post-fledging based upon an observed time to parental independence (Snyder, Enkerlin-Hoeflich, Cruz-Nieto. 1999) we wish to model a "chick to independence" timeline.

We suggest a home base for the project near Globe, AZ.

Bird will be co-parented, hand-reared, or parent reared based on individual circumstances. At 1.5

months of age (fledging is at 2 months according to Synder et al, 1999) chicks will be transferred to the "home base" of the project to adapt to local climate ad bond with handler. At time of fledging the "systematic exposure," as has been published upon previously, will begin. Telemetry will be utilized until 6 months of age.

At time of natural parental independence, skill gain will be evaluated compared to wild skills. Potentially birds will fly several months longer to continue skill gain. Upon achievement of wild skill levels, the program will be evaluated and birds returned to breeding programs.

Application of results

This can be applied create groups of established animals at desirable sites. The human socialized birds can act as social tutors "train" non-human socialized captive-releases, confiscated-releases, or translocants, thereby creating a non-human socialized wild flock. If successful these result will impact the recovery of thick-billed parrots in their native range as they will inform about the necessity and process regarding translocation and the value of captive animals to conservation, dove-tailing with the Thick-Billed Recovery Plan Addendum. These results will also have application to Old and New World parrot recovery program of captive-release and confiscated-release recovery programs.

Appendix I: A history of the last wild parrot in America

Few records exist

The Thick-billed parrot is the only extant parrot native to the mainland United States. This bird occurred in mining and ranch areas that were not well documented due to the harshness and low population density of the "Wild West" terrain. Because of its remoteness, serious study of the species occurred only in the last century. For example, its eggs were not collected and studied by scientists until 1906 (Bergtold, 1906), during which time the bird was already being extirpated in Arizona. As such, records of species' presence in the American Southwest prior to its decline are scant, similar to the case of the Carolina parakeet, about which almost nothing is written about its nesting. We know the thick-billed parrot been present within today's geographic United States over the centuries and found remarkable distances from the current Mexican border. An initial record of Arizona by a Spanish expedition in 1583 includes mention of parrots in the Flagstaff area. (Wetmore 1931)

Cultural Impact

Culturally, the thick-billed parrot is part of the American landscape. The thick-billed parrot has featured in pre-historic Native American scared art and sacred ritual throughout the Southwest, with anatomically accurate paintings and skeletons found at Native ritual sites. The range of pre-historical thick-billed cultural presence is quite large. There are bones and paintings in Central and Northeast New Mexico in the East (Hibben 1975, Bailey 1940), with bones found West near Flagstaff (Hargrave 1939), with the Northernmost artifact, a feather fetish, found in Colorado. (Hargrave 1955) During development of the American West the parrots were seen as augurs of good fortune. "Their appearance greatly excited the miners who were inclined to consider it a lucky sign, with 'strikes' sure to follow." (Smith 1907) See also, Wykoff 2009 and Rizo 1998.

The scant history supports regular presence

Despite limited research attention and habitat destruction, during at least six consecutive decades the thick-billed parrot was present in the United States, with some very large counts (>1,000) estimated during the earliest records. Reliable accounts and or study skin specimens exist for 1885 (Fischer 2001) late 1880s (Shufeldt 1900), 1898 (Lusk 1900), 1900 (Ornis 2013), 1902 (Monson & Phillips 1981 via Synder 1999) 1904 (Smith 1907), 1914 (Ornis 2013), 1917, 1918, 1919 (Wetmore), 1920 (Ornis 2013), 1922 (Monson & Phillips 1981 via Synder 1999) and 1938 (Monson & Phillips 1981 via Snyder 1999). The listed accounts produce a wide range in the U.S. with a Western boundary near the current Mowry Mine, San Rafael Ranch State Park, AZ (Wetmore 1935) East to Western New Mexico, likely Animas mountains (Shufeldt 1900), with a Northern Boundary roughly at the latitude of Casa Grandes, AZ, with records in the Graham Mountains (modern, Pinaleno Mtns.,) and the Northern end of the Galiuro mountains. (Wetmore 1935). The birds were *not* brief strays into our borders. During 1917-1918 birds were recorded as having stayed year-round. (Wetmore, 1935) *Before* the major 1917 incursion, which is the best documented, a contemporary ornithologist spoke with those local to the Arizona mountains and stated " […] Rhynchopsitta pachyrhyncha may be looked for every few years or so, and is not nearly as casual as supposed." (Smith 1907). Primary observation supports Smith's survey, "One longtime resident of the Chiricahua Mtns.—William Reed of Cave Creek Canyon—maintained that the species was an every-year resident around the turn of the twentieth century (pers. comm. via J. Brown). Similarly, a report of V. W. Owen dated 24 Sep 1915 (John Law Collection, Virginia Polytechnic Institute) indicated that in 8 summers spent in the Chiricahuas, he always noted a few Thick-bills […]" (Synder 1999)

Beyond their regular presence in the Southwest as shown above, a variety of credible but unverified sightingss, such as photographs from the Armendaris Ranch, AZ sightings in 2003 (NM Dept. Game and Fish 2004) and the

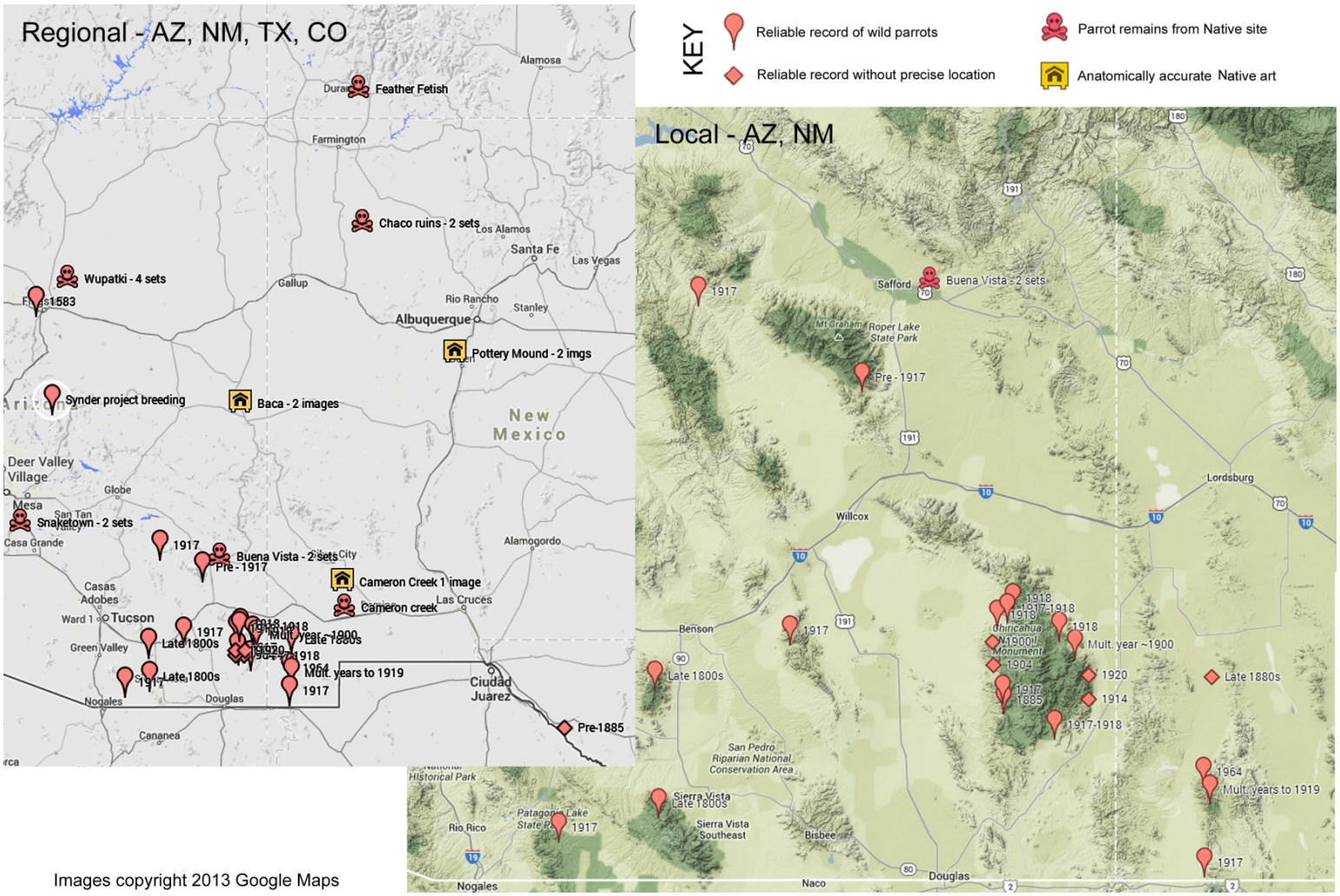
written 1964 Animas Peak, NM sighting (Woodard 1980) show that thick-billed parrots still visit their previous Northern range.

We can look to historical records to re-define the extreme range of thick-billed parrots. A thick-billed parrot was collected by James Audubon in Texas, listed in the 1895 AOU checklist, that is today held by the Drexel University Academy of Science's collection. Interesting but "oddball" accounts such a newspaper retelling of wild parrots near Provo Utah in 1880s and a caged parrot kept by Native People in Utah in 1583 during a pine nut mast, may indicate that these birds were occasional strays much farther North and East than previously believed. (See birdrecoveryinternational.com for maps and citations of sightings.)

Breeding in the United States

In the accounts cited above, birds were not tracked or observed long-term when they naturally inhabited the United States. As such it cannot be confirmed if they did or did not breed in United States ranges. However, we know that breeding is possible as thick-billed parrots have bred in the U.S., as demonstrated by Snyder's project where a released pair hatched bred in central Arizona, near Payson, with at least one offspring that fledged and survived. (Snyder et al 1994) Because of the birds' remote, localized, and unusually late-season nesting, even within its modern-day Mexican range there are extremely limited historical accounts of nests. (Snyder 1999)

Thick-billed parrot settler sightings and pre-colonial presence at Native sites www.arizonaparrot.com



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