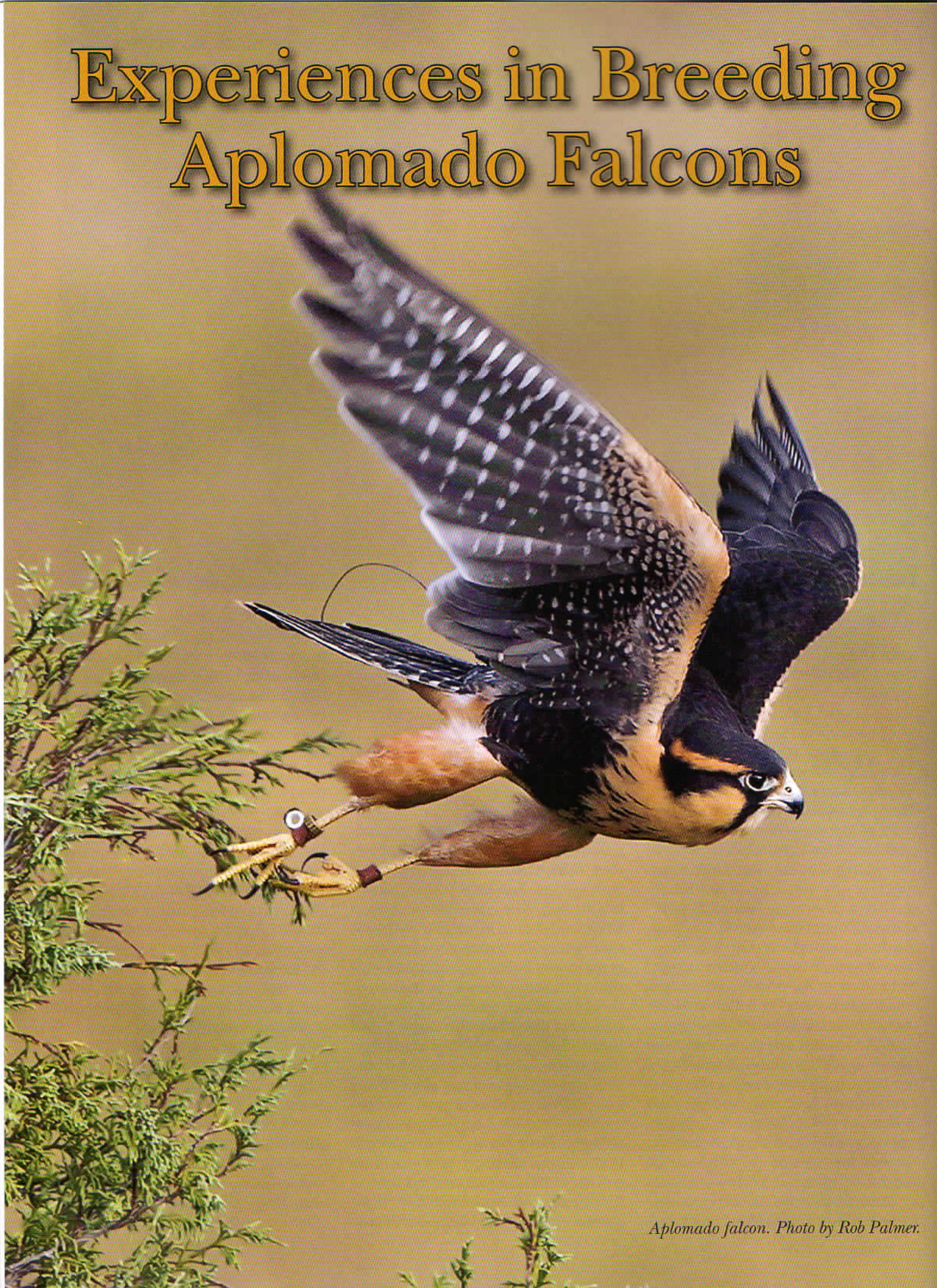
Experiences in Breeding Aplomado Falcons



Aplomado falcon. Photo by Rob Palmer.

15-day-old aplomado chicks. Photo by author.

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The Peruvian subspecies of aplomado falcons (*Falco femoralis pichinchae*) was introduced to American falconry through the efforts of Jim Nelson, Doug Alton, Harry McElroy and Jose Antonio Otero Corbeto (of Lima, Peru). Nelson authored a permit under the auspices of the USFWS and the Division of Management Authority in response to importation restrictions imposed by the Wild Bird Protection Act (primarily intended to protect parrot species, but then later applied to most avian species) to obtain 20 pairs of aplomado falcons from any legitimate source in South America. Alton traveled extensively throughout South America, making various attempts to establish aplomado breeding situations, finally supporting Corbeto in founding his wildly successful neotropical raptor breeding project ("El Huayco") in Lima.

Aplomado falcon on a Hungarian partridge. Photo by Jim Nelson.

One of the few ways to bring raptors into this country is through a co-op of individuals whose charge is to "safe harbor" the genetics of the species or subspecies in case they are needed in the future for repopulation in their native country. The northern subspecies (*Falco femoralis septentrionales*) is endangered and thus is not yet available to American falconers. However, in 2013 the Peregrine Fund terminated its captive breeding project and handed out 25 pairs of the northern subspecies to falcon breeders. It is unknown at this time whether their offspring will be available to falconers to utilize. As a result of the efforts of Alton and Nelson persisting through this difficult process of importation, American falconers now have access to a species of raptor previously unavailable. We now have a species of falcon to hunt avian quarry that is second to none and envied by falconers around the world. That the aplomado falcon of the New World was the alethe (aka: aleto) of the Old World has been proven beyond a reasonable doubt through the research and hawking trials of Jim Nelson.

The following excerpts are from Jim Nelson's communications:

October, 2005: Account of the first grey "Hungarian" partridge (*Perdix perdix*) taken by an aplomado falcon since the Sixteenth Century.

Dear friends,

At approximately 5:00 p.m., PST, on Tuesday, October 4, 2005 in the vicinity of Steptoe Butte, my once-intermewed female aplomado falcon captured, in fair flight, a wild Hungarian partridge. The flight was witnessed by both the land owner and a local ranch hand. This flight followed a series of increasingly improved flights on Huns that has developed over the past two weeks. As this aplomado developed she began to show us speed, determination, and endurance, and well as cooperative response. Flights all occurred in Eastern Washington in winter wheat scenarios, with intermittent brushy (or CRP-type) cover. Recently, flights have all ended with the aplomado dominating the scene, and on several occasions it has been obvious that the only reason the Hun was not captured was a failure on the part of the falconer to produce a viable re-flush.

Today's successful flight initiated from a small patch of rose hip. There were just three birds in the covey. As the partridge flushed the aplo bolted from the fist after the first bird, the old male, but as she cleared the brush two others

A cast of aplomado falcons chasing a Hungarian partridge. Photo by Jim Nelson.

rose beneath her. She veered sharply at a younger member of the covey and pursued it hard until it dropped into cover in an "eyebrow" next to the farm road. The second flush resulted in a fast tail-chase to a V-shaped patch of tall weeds in a wheat field. The flight was interrupted by the appearance of a haggard tiercel prairie falcon and the two falcons duked it out down a pole line. The aplo seemed to be the victor. She also seemed very slender and narrow in comparison, side-by-side, to the prairie. She returned to a swung lure and was gathered up on the fist. Despite the dog's best efforts, the wet ground (it rained hard that day, several times) made scenting difficult and the re-locating of the Hun was a matter of methodically tearing the patch apart, stem to stern. Finally, the crouching bird was spotted and reflushed for a third tail-chase along the roadside. The Hun pitched into some high grass and it seemed the aplo might have it there. When we arrived we found evidence that she had footed it, as there was Hun feathers scattered about. The setter redeemed himself by eventually pointing the partridge. The fourth and final flush resulted in a long chase through the stubble and we all cheered as we saw the alethe truss her partridge just before it arrived at cover.

I appreciate your taking the time to read this notation and validate this accomplishment. I have been working toward this goal since 1982 when I first become aware of the "mystery bird" of Medieval Europe (imported from the New World) known as l'alethe. When, through Harry McElroy's efforts with aplomados in Peru, it became evident to me that the aplomado was the alethe, I extensively researched the idea and then published my hypothesis in the 1995 edition of the Washington Falconers' Association "Mewsletter" under the title "L'Alethe Revisited." I then re-published my theory in the 1996 NAFA Journal under the title "In Search of L'Alethe." From there, as WFA President, I helped formulate our current cooperative, and then, in cooperation with Ron Tokar, I wrote the application for 20 pairs of aplomados for our breeding cooperative. Following that, in cooperation with Doug Alton, I began breeding aplomados– imported by Doug from Peru.

Finally, in 2004, I had the opportunity to test my alethe-theory with a

Newly-hatched aplomado falcons showing the difference between male and female. Photo by Jim Nelson.

home-bred female aplomado, which I believed was the sex necessary to do the job. Her first season was spent primarily catching feral pigeons, but it ended with several serious Hun excursions to the Palouse. This season began with some feral pigeon hunting, but rapidly switched to Huns, once her physical conditioning was established. That brings us to today.

It is my firm belief that this event marks the first documented capture of a Hungarian partridge by a falconry-trained aplomado falcon since the early 1600's (during the time of Charles D'Arcussia). It is also my firm belief that this capture of a wild Hungarian partridge by a trained aplomado is the essential data needed to establish that the aplomado-as-the-alethe-of-old is not just a very believable hypothesis, but now–based on concrete data–is established as fact. It is my intention to continue to repeat this data by catching more partridge. However, I believe that now and forevermore we can lay the mystery to rest. The aplomado falcon is, indeed, the alethe. Yours in the sport. . . Jim Nelson

January 2008:

Dear aplomado falcon breeder (there are now 11 of us with 24 pairs around this country),

If you are receiving this email, to my knowledge you have at least one viable pair of Peruvian aplomado falcons (Falco femoralis pichinchae). Congratulations! You are a part of North American falconry history!!!

It seems almost incomprehensible that I would be sending a "mass" email to aplomado breeders in the US. In 1995 I was told to forget ever having an aplomado for falconry in this country. Doug Alton was told the same thing at about that same time. Neither of us are the type to take "no" for an answer.

Up until now, Doug and I have been the sole producers of falconry-available aplomados in this country. Please keep in mind that the ultimate goal is to successfully establish a completely new species of raptor to American falconry on a permanent basis. At very best, the gene pool is limited and future pairings must be made intelligently and based on good information for long term success.

In order to preserve the genetic integrity of our pichinchae population, I have been keeping a rigid pedigree of all offspring produced from the Peruvian aplos in the US. However, I can only log into my data banks the information you provide to me. The advantage to you is that I can help you in your efforts to pair your offspring in a genetically sound fashion.

January 2009: The first hunting with the Aplomado in the United States.

In the sixties and early seventies there may have been several US falconers that purchased Northern aplomados from then-legal bird sellers. These were marketed as "giant kestrels." I believe it may have be Ron Jersavich that has the best memory or documentation of having and flying an aplomado at that time. Ron lives in Rathdrum, Idaho now, but then he lived (I think) in Pennsylvania. He told me that he flew the aplomado free and lost it in time. John Arent may be another. I remember also hearing from someone in Florida back in the 90s that

Banding day with two 10-day-old aplomado falcons. Photo by author.

stated he had an aplomado as a child (in the 60s or the early 70s–giant kestrel) and was hoping to try another if I was successful breeding them.

Harry McElroy and Tom Cade were given aplomados to fly by the P-fund in the early 90s. Harry was living in Mt. Home, Idaho at that time and flew his for a short while at quail until the feds determined that even these two auspicious falconers couldn't handle Northern aplomados. I am also told a California falconer that worked for the P-fund at the California facility (Brian Walton maybe???) flew one and took doves with it in the 1990s. I haven't confirmed this, but if so he is probably the earliest successful game hawker of aplomados in the US.

Following this, I conceived going through South America and importing non-Northern aplomados through the cooperative avenue to prove my alethe theory. I applied for 20 pairs with fellow coop member Ron Tokar in cooperation (he had chambers up and running, mine were under construction) and I waded through the paperwork and got the coop listing for the 20 pairs. My chambers were finally finished in time to receive my first pair.

The first person to receive and fly one of the imported Peruvian aplomados was Harry McElroy, who then lived in Willcox, AZ. This was in the year 2000 (according to my pedigree records). He was given this bird by Doug, but lost this bird while hawking with it. He may have taken quail with it. I was fortunate to be the first US breeder to produce a Peruvian aplomado on US soil, in 2002, and the second US falconer to fly a Peruvian aplomado in the US, a captive bred terceletto, Inca. Unfortunately, this really fine little chamber-tempered terceletto landed on the wrong pole and was electrocuted while quail hawking. He would chase rooster pheasants and rabbits, along with quail and other small birds. But he died within two weeks of his first free flight.

Harry reemerges as the most successful early aplomado falconer, hawking quail regularly and successfully from horseback in Willcox with the 2003 alethe, "Favorita," and then shortly after that I took 40 wild pigeons in 24 outing in 2004 and the first Hun in 400 years with an alethe in 2005. I called her 04 Crying Out Loud and she was Penny Lane and Chase's mother. The rest as they say...

Hope this helps.

My Own Aplomado Experiences

My first aplomado male, Sgt. Pepper, was purchased from Jim Nelson in 2006. The primary purpose of the co-op was to protect the genetics of the individual birds

Young aplomado falcons. Photo by Jim Nelson.

taken from Peru. My male was considered "excess genetics," meaning his genetic profile was represented in the co-op and he was available to falconers outside of the co-op. Flying this bird during that season was so exciting; it opened my eyes to its capabilities. Observing and participating in the aerial chases and successes were some of the best times I have had in my short falconry career. The season closed and Nelson asked if I would be interested in placing my male in his breeding project paired with his female, Cuvee. I reluctantly agreed, but it gave me the opportunity to try a female for the next season.

I live in Nebraska, and Jim told me female aplomado falcons are very capable of taking pheasants. I did not believe it, but by the end of the season my female, Penny Lane, had taken eight hen pheasants and dispatched them before I had arrived. She is now a breeder in Justin Stovall's breeding project in Florida. Very few falconers have utilized aplomado falcons in a cast (cooperative hunting pair). Justin and Sherrie Stovall may be one of the first US falconers who have successfully raised a young pair of Peruvian aplomados to hunt exclusively in a cast. As you can imagine, I became hooked on aplomado falcons for their beauty, sociability, flight style, and hunting attitude. Nelson then encouraged me to become an aplomado breeder.

Having no experience with raptor breeding, I was hesitant. I had no knowledge or experience, but he told me he would help me if I wanted to give it a try. First, I needed to spend the money on the required breeding equipment and build a breeding chamber with a camera. I read everything about breeding falcons I could get my hands on; I also watched breeding videos by renowned breeders. This was just a start and will only get a person so far. In order to become a breeder, like falconry, you have to get in there and get your hands dirty. The only way to become a successful breeder is to get some experience. We all make mistakes when we try something new, but with the help of an expert, I felt comfortable making this leap.

My first pair was my original male, Sgt. Pepper, and Nelson's partridge catching female, Cuvee. I set up my chamber for the pair with Jim's guidance and example. One nice thing about small falcons is they don't necessarily need a large space to be successful. Aplomado falcons don't build nests in the

Juvenile female aplomado. Photo by author.

wild; they utilize old, abandoned nests; I provided a nest basket large enough with the appropriate bedding (raffia grass initially, and now cedar chips). The food source is 8 eight-week-old Boyd quail that is supplemented with vitamins. However, some breeders feel strongly that, for small raptors, it is important to provide wild sparrow in the diet as well. A camera was placed above the nest so I could see when eggs were laid and be able to determine when they hatched. Usually, it is 33 days of "hard" incubation until hatch. The falcons will lay a clutch of two or three eggs (with two days in between each egg) and they will start to incubate them seriously and constantly after the second egg is laid. Once the eggs hatch, you must band the young at 10 days because their foot will grow too large to get the band on if you wait too long. If you band them prior to 10 days it is possible for the band to fall off the bird. These facts are why it is important to have a camera in your chamber. For sexing young aplomado falcons, I utilize the Sandfort Chart that is on page 152 of Harry McElroy's book, *Desert Hawking IV*. The section from pages 151-153 goes into great detail on this subject.

I purchased a lot of breeding equipment, like incubators, hatchers, brooders, and a light to candle the eggs. The main reason for all this equipment is so one can pull the eggs after being laid and hatch them yourself, allowing the falcon pair to reclutch. This procedure can maximize the number of offspring you produce. Literature states that natural incubation by the female for about 10 to 14 days will vastly improve your hatchability once the eggs are removed and put into the incubator. After the eggs are removed, the falcon will lay another clutch, but it takes at least two weeks for the female to recycle. The down side of pulling eggs and hatching them in your equipment is you then have to raise the young yourself. If it is raised with its sibling, it will be a "dual imprint," meaning that it is imprinted on humans as well as birds and will be a tame bird that is able to breed. If it is raised only by a human, with no siblings, it will become a social ("hard") imprint and never breed naturally. Raising young falcons independently is a lot of work! Nelson also recommended that before pulling eggs, allow a new young aplomado pair to incubate their first clutch and raise the young themselves. Allowing the pair to do this will make

Mew camera of aplomado falcon with offspring. Photo by author.

them better parents and a more successful breeding pair. I followed his recommendations and now have successful breeding pairs of aplomado falcons.

Breeding raptors is an act of love for the species. Making significant money breeding birds is a difficult proposition and only a few very dedicated falconers are successful on a large scale. Most breeders have small projects that may make some money to pay the falconry bills and are primarily for their enjoyment.

Jim Nelson and Doug Alton were the first breeders of Peruvian aplomado falcons in the United States. Their whole purpose, apart from the co-op, was to create a sustaining population of aplomado falcons available to US falconers. Initially, these guys were dual imprinting the vast majority of the offspring. That made a lot of sense because they could double- or triple-clutch the female raising the most offspring possible—with the added benefit that all could become future breeding birds. This formula was perfect to rapidly increase the numbers of aplomado falcons and create a sustainable population in the United States. The difficulty with this method is it is very time consuming to raise so many offspring. This was truly a labor of love! If this process was not followed, the number of falcons produced per year would be too small and, with the natural loss of falconry birds, we may have never been able to reach the goal of sustainability.

The Peregrine Fund had a program to try and repopulate the southwestern United States with the northern aplomado subspecies. They did a lot of artificial insemination to increase offspring production. The following link is a YouTube video showing their process of artificial insemination: https://www.youtube.com/watch?v=lOV6Kk3N4ek. Over the years, the Peregrine Fund has released many offspring in the southwestern United States, where they were present naturally. Some of the released birds have successfully paired and bred naturally in the wild, raising offspring of their own. You can read about their efforts on their website, www.peregrinefund.org.

As stated earlier, when I first started, Jim Nelson commented that you should let the female raise at least one clutch. This is exactly what I did. Nelson also stated, "Aplomado falcons have a reputation with some South American breeders of not being reliable parents; they observed that some parents tend to cannibalize their young." I had a hard time believing that statement. How can aplomado falcons be any different than other raptor species? Over the last several years many breeders including myself have been doing natural incubation and parent rearing and have found the parents are very good at taking care of the offspring. Up to this date, unlike some breeders, I have yet to have an adult kill an offspring.

However, one very experienced breeder noted:

"LAST YEAR A FULL 25% OF OUR NATURALLY HATCHED YOUNG DIED IN THE NEST—27 LIVED OF 35 HATCHED. SEVERAL I KNOW WERE KILLED OUTRIGHT AFTER BANDING BY THE PARENTS –NO DOUBT THE FEMALE—AND OTHERS EITHER DISAPPEARED OVERNIGHT OR WERE FOUND DEAD ON THE SHELF WITH BITE INJURIES. I BUSTED A GUT REDOING MY FEEDING, WATERING AND PERCHING AND HYGIENE PROTOCOLS SO THAT THERE WERE NO POSSIBLE EXCUSES. THIS YEAR, IN THE FIRST TWO CLUTCHES, BOTH FEMALES KILLED AT LEAST ONE BABY…I MADE A PROTOCOL OF GRABBING THE LAST HATCHED IN EVERY CLUTCH AND HAVEN'T LOST A BABY SINCE."

The main reason I decided not to dual imprint and allow the parents to raise the offspring was because I was more inexperienced than the parents. If they could raise them properly, it would be more successful and less time consuming for me. The only downside for me is less offspring because my pairs would only have a single clutch of two or three eggs per year, and not all the eggs laid would be fertile or hatch. I accepted this negative because I was doing this for the enjoyment as well as, in some small way, to assist in the larger goal of having a sustainable population of aplomado falcons in the United States.

Between 2008-2014, my pairs have laid 45 fertile eggs. They were allowed to incubate naturally and 32 of them have hatched. This is about a 70% hatch rate. However, in the early years the successful fertility and hatch rate was a lot less. I thought at the time I was doing something wrong, the wrong chamber design, the wrong food, the wrong nest, or because

The following details are from my experience breeding Peruvian aplomado falcons:

2008: 1 pair (dual imprinted)

2006 hatched parents:		2 eggs, both infertile

2009: 1 pair (dual imprinted)

2006 hatched pair:		2 eggs, both infertile

2010: 4 pairs (dual imprinted)

2006 hatched pair:	1st clutch:	2 eggs, both fertile, no hatch
	2nd clutch:	2 eggs, both infertile
2006 female+2008 male:	1st clutch:	2 eggs, 1 fertile, 1 infertile, 1 hatch
	2nd clutch:	2 eggs, both fertile, no hatch
2008 female+2008 male:	1st clutch:	2 eggs both infertile, no 2nd clutch
2004 female+2008 male:		no eggs

2011: 4 pairs (dual imprinted)

2006 female+2006 male:	1st clutch:	2 eggs fertile, 2 hatch
2006 female+2008 male:	1st clutch:	3 eggs fertile, 3 hatch
	2nd clutch:	2 fertile eggs put in incubator, no hatch
2008 female+2008 male:	1st clutch:	2 eggs, 1 fertile, 1 infertile, 1 hatch
2004 female+2008 male:	1st clutch:	3 eggs, 2 fertile, 1 infertile, 2 hatches

2012: 4 pairs (dual imprinted)

2006 female+2006 male:	1st clutch:	3 eggs, all broken in the nest, 1 fertile documented no hatch
	2nd clutch:	3 eggs fertile, 2 died, 1 hatch
2006 female+2008 male:	1st clutch:	3 eggs fertile, 2 died 1 hatch
	2nd clutch:	2 eggs fertile, put in incubator, both died
2008 female+2008 male:	1st clutch:	2 eggs, 1 fertile, 1 infertile, 1 hatch
2004 female+2008 male:	1st clutch:	3 eggs, 3 fertile, 3 hatches

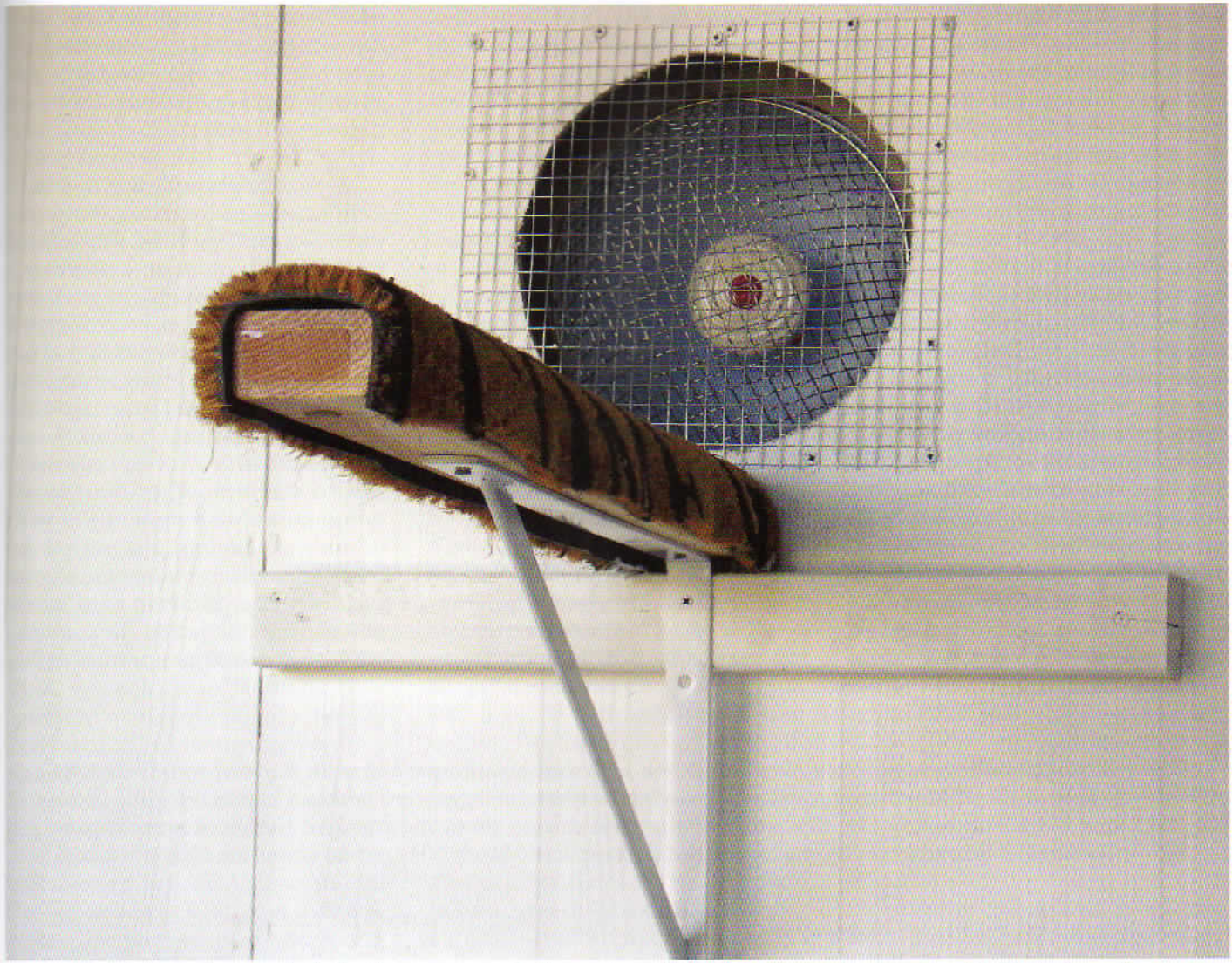
2013: 4 pairs (dual imprinted)

2006 female+2006 male:	1st clutch:	2 eggs, 1 fertile, 1 infertile, 1 hatch
2006 female+2008 male:	1st clutch:	3 eggs, 3 fertile, 2 hatches, 1 died in
	2nd clutch:	2 eggs, 2 fertile, 1 hatch, 1 died in
2008 female+2008 male:	1st clutch:	2 eggs, 2 fertile, 2 hatches
2004 female+2008 male:	1st clutch:	3 eggs, 3 hatch

2014: 4 pairs(dual imprinted)

2006 female+2006 male:	1st clutch:	2 eggs, 2 hatch
2006 female+2008 male:	1st clutch:	3 eggs, 2 hatch, 1 died in shell
2008 female+2008 male:	1st clutch:	3 eggs, 3 hatch
2004 female+2008 male:	1st clutch:	3 eggs, 3 hatch

Breeding chamber. Photo by author.



Perch located near a hole that has a warm air blower turned on when the temperature is cold. Photo by author.

they were dual imprinted that they would not breed or were in some way incompatible. However, over time, my perception has changed and, as they become more experienced, the fertility rate is 100% and the hatch rate is extremely good (2014 is 90%). In my experience, it took my 2006 birds until 2010 to be successful and my 2008 birds until 2011. I noticed that you could improve the time to your first successful hatch with a younger bird if you placed it with an experienced breeder.

There is little motivation for me to utilize my incubation equipment because of the high rate of success with natural incubation and parent rearing I have experienced. However, one breeder had a different experience this season:

"ONE FEMALE LAID HER SECOND CLUTCH, TWO WEIRD LIGHT-LOOKING EGGS, OUTSIDE THE NEST ON THE PLATFORM AND ABANDONED THEM. WE DIDN'T DISCOVER THEM FOR AS MUCH AS TWO WEEKS LATER WHILE CLEANING OUT THE NEST. I POPPED THEM INTO THE TOP DOWN AND ONE IS FERTILE AND DEVELOPING THE ROSEY HALF SHADING. IF IT HATCHES AND LIVES, THE INCUBATOR WILL BE HALF PAID FOR!"

Although natural incubation is easier for me, the downside is that the aplomados usually have only one clutch and, therefore, I have fewer offspring to sell. I have found my aplomado parents do a great job incubating, hatching, and rearing their offspring in captivity, similar to other falcon species. The offspring can be utilized for falconry and breeding as well. The aplomado species is a social one that tames down nicely and accepts both people and dogs quite well.

Next I want to discuss an observation I was not prepared for. I have a female aplomado that laid a second clutch when there were fledglings in the chamber from the first clutch. This was a total surprise, but after discussing it with a few other breeders, I found out it has happened before. Jim Nelson has experienced it with a few of his breeders, and a falconer who breeds Harris's hawks has had the same thing happen. Another breeder mentioned to me that a female aplomado once laid an egg for the second clutch with downies in the nest. To his surprise, the female subsequently killed the

juveniles. Who knows why or what she was thinking. Maybe she felt the downies might be a threat to the new eggs. If you are a breeder and you see another egg in the nest with downies, make sure you remove the offspring. In my experience, the female successfully incubated the second clutch with the fledglings from the first clutch in the chamber and subsequently hatched her second clutch of offspring. I did remove the older fledglings prior to the second hatch to make sure the hatchlings would be safe. **Remember: no matter how good your breeding chambers are, it is not like breeding in the wild. Captive propagation is not natural for the species we breed.**

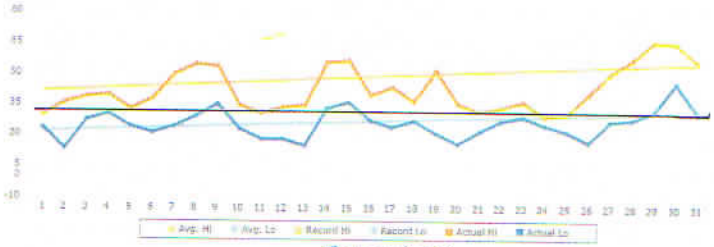
The next observation to discuss is related to where one lives in the country and what effects climate may have on the breeding pairs. There are breeding projects all over the country, some in warm climates like Florida, California and New Mexico, some in moderate climates like the state of Washington. My project is in Nebraska and we have some pretty extreme and unpredictable weather. My breeding chambers are open to the air, with bars covered by screens. I also have full-spectrum lighting in the chambers, and one of the perches is located near a hole that has a warm air blower turned on when the temperature is cold. The mews faces southeast and is well protected from the north wind, snow, rain, and it gets the morning sun. In the warmer parts of the country, it appears that the aplomado falcons tend to breed earlier. They may start breeding in December and be laying eggs in early January. In my part of the country, the birds start laying eggs in March, hatching 33 days later in April. The birds are usually hard-penned at about 52 days from hatch.

Over the last two years, Nebraska has had very cold spring temperatures. In fact, in 2014 there have been record cold temperatures for extended periods of time. A few years ago the temperature dipped to below freezing after several of my falcons laid eggs. I was very nervous about this because, after reading about artificial incubation, I was impressed with how important it was to maintain the incubator's temperature at a stable level with periods of cooling, not periods of freezing. I did an internet search at the time to see if falcon eggs, when naturally incubated by the parents, could withstand temperatures be-

The following is a series of charts that shows the high and low temperatures in Bennington, Nebraska during the months of March and April. They also show when the eggs were laid and hatched for the years 2013 and 2014. You will notice that most of the days during these months had temperatures dipping below freezing. The extreme cold occurred the first week in March 2014, when six of my eggs were laid.

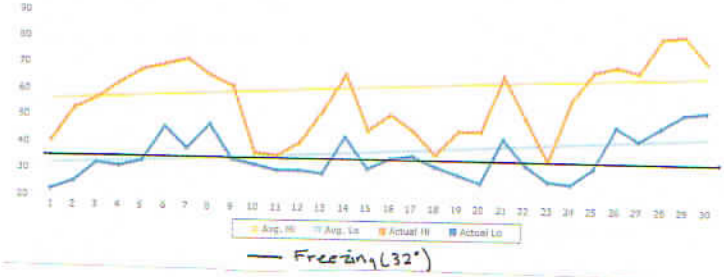
2013-2014 Aplomado Breeding Seasons

Dates eggs Laid	3-5-13	3-6-13	3-7-13	3-8-13	3-9-13	3-11-13	3-13-13	3-16-13	3-27-13
High Temperature	33	38	50	55	34	31	35	40	51
Low Temperature	24	21	24	29	35	18	15	27	27

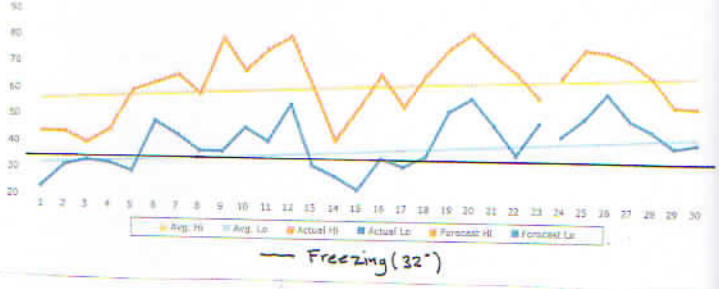


Dates eggs Laid	3-1-14	3-5-14	3-8-14	3-10-14	3-12-14	3-15-14	3-29-14	4-1-14	4-4-14
High Temperature	18	2	40	74	54	62	57	44	45
Low Temperature	0	-6	18	35	28	28	24	23	32

Date eggs hatch	4-10-13	4-10-13	4-11-13	4-11-13	4-12-13	4-18-13	4-19-13	5-3-13
High Temperature	37	37	36	36	41	37	46	49
Low Temperature	32	32	30	30	30	32	29	31



Date eggs hatch	4-6-14	4-8-14	4-11-14	4-13-14	4-17-14	4-18-14
High Temperature	63	59	76	62	42	67
Low Temperature	48	37	41	32	23	36



low freezing, but I was unable to find anything. I did see two studies, one with pheasant eggs and one with duck eggs. Both showed that they could withstand freezing temperatures and still hatch. In fact, one duck egg had cracked as a result of freezing and still hatched. It was the authors' impression that eggs and their contents are resistant to freezing. In addition, I found out that the embryo does not start to develop until it reaches a certain temperature. The reason for this is that the falcon can lay a clutch over a period of a week and once she starts to incubate them "hard," which means constantly, they will all start developing at the same time and, thus, hatch near the same time. At the time I was worried about these freezing temperatures and was tempted to remove the clutch and put it in the incubator until the cold resolved. The only problem was if I did not give the falcon fake eggs to sit during this time, she would start another clutch. Pondering this problem, I made a decision to leave everything alone, and let the female do what nature tells her to do. This experiment, if successfully resulting in a hatch, would reassure me not to worry about the outside temperature.

The results of the experiment show clearly the parents and their natural instincts did great. They kept the eggs warm, preventing them from freezing or dying, and they incubated them properly until hatch. During one year, a natural second clutch occurred in the summer heat with temperatures of over 90 degrees daily. I noticed the parents just standing by the eggs many times, not laying on them for any extended periods. I was worried at the time, but the eggs hatched and I learned that the females must know when not to sit on them. Some literature indicates that the embryo is more sensitive to heat and overheating will kill the embryo just as easily. This season, spring 2014, three sets of parents laid eggs earlier than last year. This just happened to be a record-setting cold year for Nebraska. The first female laid her egg with a daytime high of one degree and a night time low of 10 degrees below zero, which is 42 degrees below freezing. She ended up laying three fertile eggs and incubated them hard from the time she laid them. This clutch was not killed by the cold, but the babies hatched two days apart from each other rather than at the same time. The female knew what to do: she incubated them from the time they were laid. Not every fertilized egg will hatch with artificial incubation, and the same goes for natural incubation. I feel confident, even under extremes, nature is just as successful. The end result is that the parents accomplish their duties naturally, properly rearing their offspring.

If you decide to become a breeder, provide a good protective environment, a healthy food source for the parents, and a place with minimal disturbance. The parents can "do it all" and, although it is still a lot of work for you, it will be a relatively simple way to have breeding success and fun. Don't necessarily be afraid of attempting to become an aplomado falcon breeder because of some extreme environmental factors in your location because these birds have an innate knowledge passed on to them through their genetics on what they need to do. Currently, I believe there are more aplomado falcon breeders that let the birds "do it all"; That is, they allow the birds to incubate, hatch and rear the offspring and so far it appears to be working well for most people. Although I don't know the actual number of aplomado falcons currently held in this country, I believe there is enough to preserve a sustainable population for American falconers to enjoy. If however, people stop breeding them, it may not take long for these birds to become unavailable to us. This is one of the reasons I decided to become an aplomado breeder; the more breeders, the better our chances to keep this Peruvian beauty in the United States. If there were only a few breeders and they retire or go out of business, that could be the end of our opportunity to enjoy this exciting falcon. It is incredibly difficult for falconers to import a new species due to rules and regulations imposed by the USFWS. If Peruvian aplomado falcons were to disappear in this country, it would be doubtful that they would be available again in our lifetime.

The most complete writing on Aplomado falcons is presented by Harry McElroy's book, *Desert Hawking IV*, where the entire second half of the book is devoted to all aspects of Aplomado falcons. You can purchase this book at http://deserthawking.com. I have compiled all the articles I could find about hunting and abatement with Aplomado falcons as well as basic research on Aplomado falcons in the wild. There are articles written by Harry McElroy, Jim Nelson, Tom Cade and Dean Hector-Keddy, to name a few. This information is on my website: www.aplomadofalcons.com; there are also some great pictures, links and a partial list of falconers who breed aplomado falcons in the United States for your convenience. I hope you enjoy it. Thanks!

A list of individuals, in approximate chronological order, who played some significant role in the emergence of the Peruvian aplomado falcon in modern American falconry to date: Harry and Beth McElroy, Jim Nelson, Brenda (then) Nelson, Chris Nelson, Rachael Nelson, Doug and Onari Alton, Jose Antonio Otero Corbeto, Dan Pike, Ron Tokar, Eleanor Nelson, Dan Robertson, Bill Meeker, Debbie Savino, Josiah Savino, Dorothy and Steve Van Note, Bill Murphy, Troy Morris, Dennis Grisco, Tom Gleason, Jim and M. J. Ingram, Tim Hickock, Jay and Gayle Sullivan, Jim Lott, Shirley Lott, Susan Trafford, Raul Ramirez, Justin and Sherrie Stovall, Kim and Bill Mauldin, Hipolito ("Polo") Gallegos Ponce, Doug Scott, Brad Wood, and Chris Lynn.

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