

RECORD ATTWATER'S PRAIRIE-CHICKEN RELEASE FOR 2014

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This year's release of birds reared by the Attwater's prairie-chicken (APC) captive breeding program (Abilene Zoo, Caldwell Zoo, Fossil Rim Wildlife Center, Houston Zoo) is one for the record books on two accounts. First, the 351 birds released this year is 23% higher than the previous record of 286 in 2008. Second, since all birds were released at the refuge again this year, this blows the previous record for any one location out of the water. The previous record for a single location was 228 last year at the refuge. The recovery team recommended after the 2011 release that all birds be released at one location (the refuge) for the near future to hopefully build a viable population quicker, and to allow for focused research on limiting factors.

So with that said, everyone immediately wants to know "...how are they doing?" The short answer is about average, so far. The last birds were released from acclimation pens in September, so all have been out for a little over 60 days. Survival to 60 days for this year is 60.5%, and has averaged 67.5% to that point since the release program started almost 20 years ago. This year's survival to date is not statistically different from the average. We have closely monitored post-release survival with radio telemetry from the beginning to provide us with information critical to the recovery program in general, and to improve the release program in particular. Figure 1 shows post-release survival through the years under the current protocol of releasing birds during July–October (with a target of all birds released by mid-September) and a pre-release acclimation period of 10-20 days (target = 14 days). Beginning in 2006, release birds were fed frozen vegetables in increasing amounts (in addition to commercial pellets provided in captivity) until by 2010, birds were transitioned to frozen vegetables before arrival at the release site and only frozen vegetables were offered in acclimation pens. While Figure 1 probably just looks like a jumble of squiggly lines, I would like to call your attention to two characteristics of those lines: (1) there is tremendous variability in survival through the years, and (2) survival over the last several years has been more consistent, most likely due to the pre-release frozen vegetable diet which helps prepare the gut for the general lack of free water on the prairie during summer months.

Figure 1 only shows survival curves for birds released under the current protocol. Considerably more variability would be apparent if survival data for all birds released through the years were shown. When we started the release program in 1995, we weren't sure what the best strategy was for returning APCs to the wild, but we knew that most past restoration efforts involving captive-reared animals of various species had failed. We also knew that we had to make our effort work if we were to save the APC from certain extinction. With those pieces of negative information as a backdrop, we hypothesized that releasing birds during the summer/early fall when wild broods would naturally be becoming independent from their mothers might be a reasonable time of year for release. We also wanted to use a "soft" release method in which birds are allowed to acclimate for some period at the release site prior to release as opposed to the "hard" releases used by many unsuccessful restocking efforts in which birds are immediately released after transfer from rearing facilities. However, we didn't know how long to

acclimate birds to give them a survival advantage. So we started with a short 3-day period versus a longer 14-day period. The results were immediately clear. Birds kept in acclimation pens for the short 3-day period experienced approximately four times higher mortality during the first 30-days post-release than birds acclimated for two weeks. We have subsequently evaluated 7 versus 14 days acclimation, and survival of the 14-day group was still a statistically significant 50% higher for the longer period.

Next we moved to an evaluation of our hypothesis about when to release pen-reared APC. One of the facts of life that APCs have to deal with each year is an influx of migrant raptors during the fall and winter. We knew from data collected by a birder who had conducted surveys for several years on the refuge, that the first arrival of migrant northern harriers occurred on average around October 15. So we classified timing of releases based on whether they occurred when migrant raptors were expected to be present or not. Not surprisingly, survival of birds released before arrival of migrant raptors was approximately two times higher than those released when migrant raptors were present. Looking at it on a month-by-month basis (Figure 2), birds released in July had the highest survival, followed by August and September, then October, and the remaining months declining from there. So in general, the later into the fall and winter releases occurred, the poorer the survival. And certainly releases closer to the breeding season were not very successful as some have suggested to maximize the number of breeders going into the reproductive season.

In summary, I hope you can appreciate from the foregoing discussion that there is much more to the APC release program than throwing a bunch of birds onto the prairie and watching what happens. A tremendous amount of effort has been, and continues to be, expended on evaluating and improving this release program so that the APC does not become extinct on our watch. The 19% average annual post-release survival that we have observed (Figure 1) is far and away better than that reported in the literature for other pen-reared gallinaceous species including greater prairie-chickens, pheasants, bobwhites, grey partridge, and capercaillies, most of which reported few if any surviving to one year post-release. Further, this article touches on only one facet (post-release survival) of the evaluation necessary for effective adaptive management of the APC release program. Another major area of emphasis has been to collect data on reproductive success of APCs after release, which I have written about in previous editions of *The Boomer*.

K-M Survival Curves for APC Released at APCNWR (current protocol)

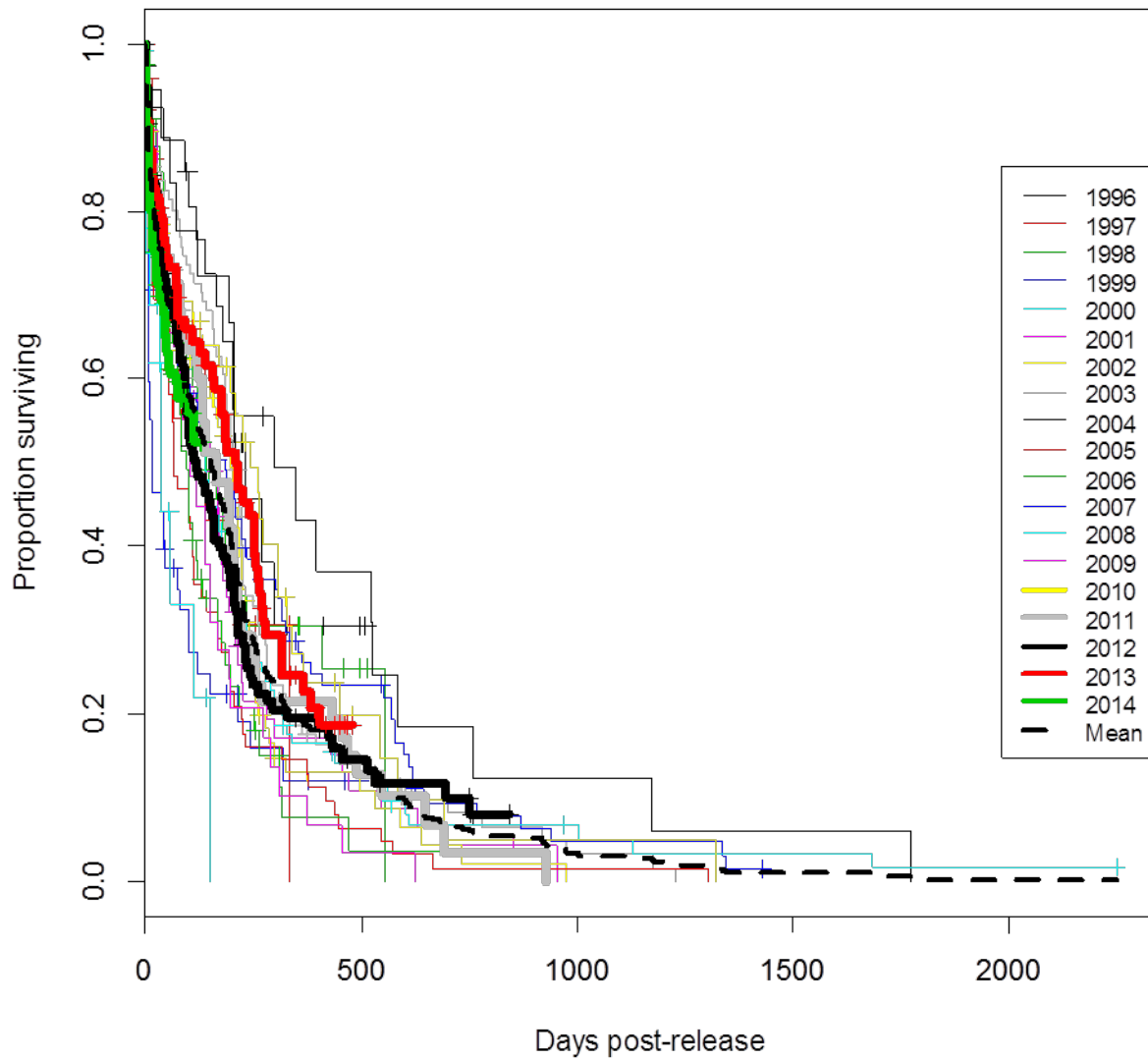


Figure 1. Kaplan-Meier survival estimates by year for Attwater's prairie-chicken released at the Attwater Prairie Chicken National Wildlife Refuge under the current protocol (released July-October, acclimation 10-20 days).

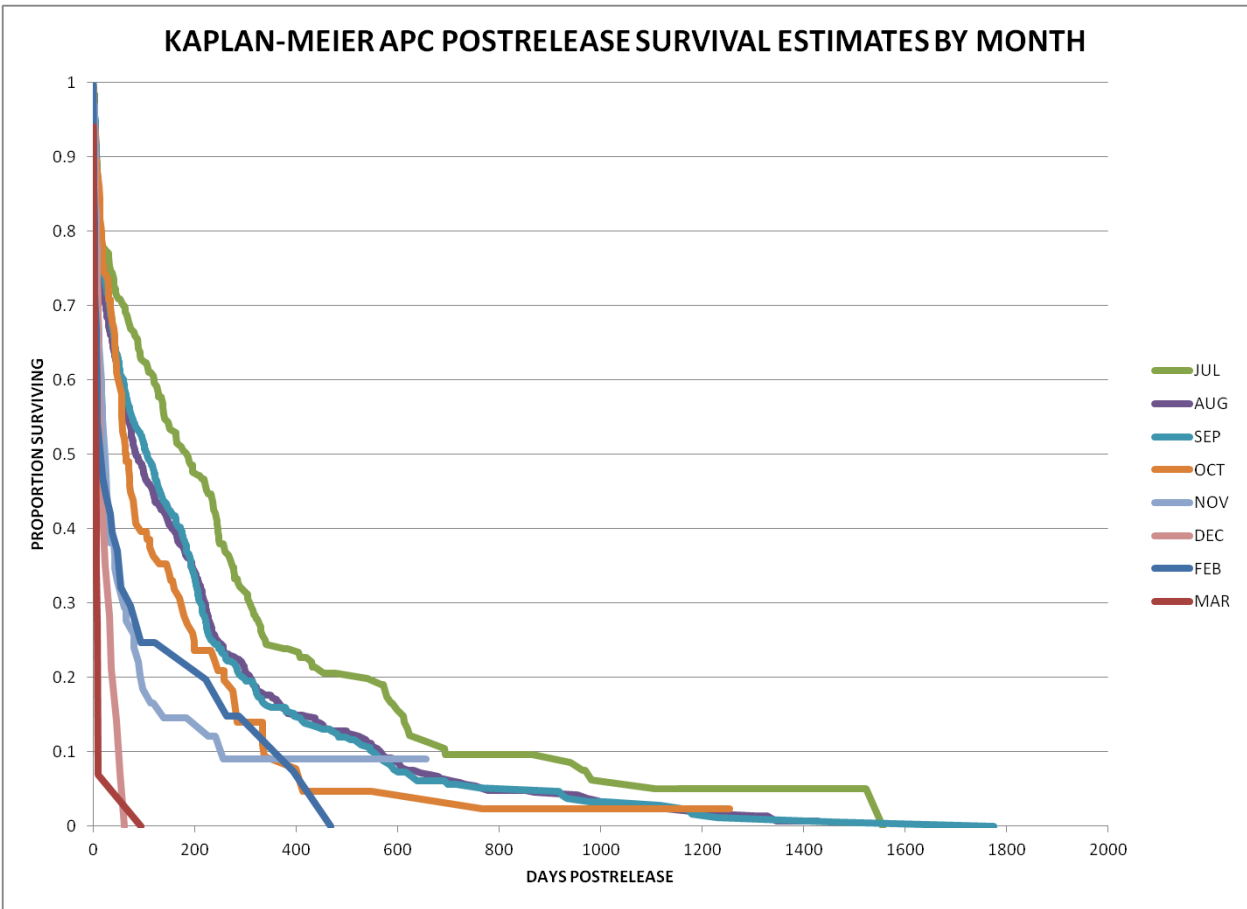


Figure 2. Kaplan-Meier estimates of Attwater's prairie-chicken post-release survival by month of release at the Attwater Prairie Chicken National Wildlife Refuge, the Texas City Prairie Preserve, and private lands in Goliad County, Texas from 1996–2011.