

Red-fored amazon parrot.



Amazon Parrots

ON A TAMAULIPAS RANCH (MEXICO): 1996

In 1996, a few years after having been bitten by the parrot bug (and occasionally by an African Grey and a Double Yellow-head Amazon), I made two trips to a working cattle ranch near the Gulf Coast of Mexico—Rancho los Colorados (Figure 1). For a number of years the owner had let it be used by researchers studying the three resident species of Amazons: Double Yellow-heads (*Amazona oratrix*), Red-lored Amazons (*A. autumnalis*) and Green-cheeked Amazons (*A. viridigenalis*). Ernesto Enkerlin-Hoeflich had just received his PhD from Texas A&M University, comparing the ecology and reproductive biology of the three species. Michael Schindlinger was studying Amazon vocalizations for doctoral research at Harvard; and Jack Clinton-Eitner (a former AFA President and director of the non-profit Center for the Study of Tropical Birds) was studying parrot ecology. It was a great place for research on Amazons, as parrots were almost dripping from the trees! That also made it a good place for a budding parrot conservationist with all the researchers around to explain the science behind what they were doing.

My first trip was an ecotour organized by Marie Digatono, a friend of Michael Schindlinger. For quite a few years she ran Vista de Pajaros Eco-tours (www.freeparrots.net/article.php?story=20031207014059718) for parrot lovers and birders in general to Rancho los Colorados and to nearby Rancho los Ebanos until Mexico sadly became too dangerous; but in 1996, the Narco gangs were not yet terrorizing Tamaulipas; so, having had such a great time in March, I signed up for an Earthwatch trip to the same ranch in June, to help in data collection for Michael Schindlinger. The trips were a marvelous introduction to wild parrots and scientific research with wild parrots and shaped the direction for the second half of my life. Thank you, Marie and Michael!

The ranch had extensive pastures with a few large trees still standing in them (85% of area), forest fragments, and shelter belts along the pasture edges (Figure 2). A few decades before, the area had been almost completely forested, but beginning in the 1970s widespread areas of forest had been cleared for cattle ranching. The rate of clearing declined after the mid-1980's when the government prohibited further clearing, although some clearing continued. Many of the adjacent ranches had been subjected to more intensive clearing. I asked why they didn't leave more trees up and was told that the belief was, cattle production would be higher with fewer trees. (I wasn't so sure.) While there were large numbers of all three species of Amazons at Rancho los Colorados, I was told that it wasn't clear if the populations were maintaining themselves and would continue to survive in the modified landscape or if the birds were refugees from recently deforested regions and populations would drop in the future.

These circumstances led to Enkerlin-Hoeflich's [E-H's] PhD research: As he wrote in the introduction

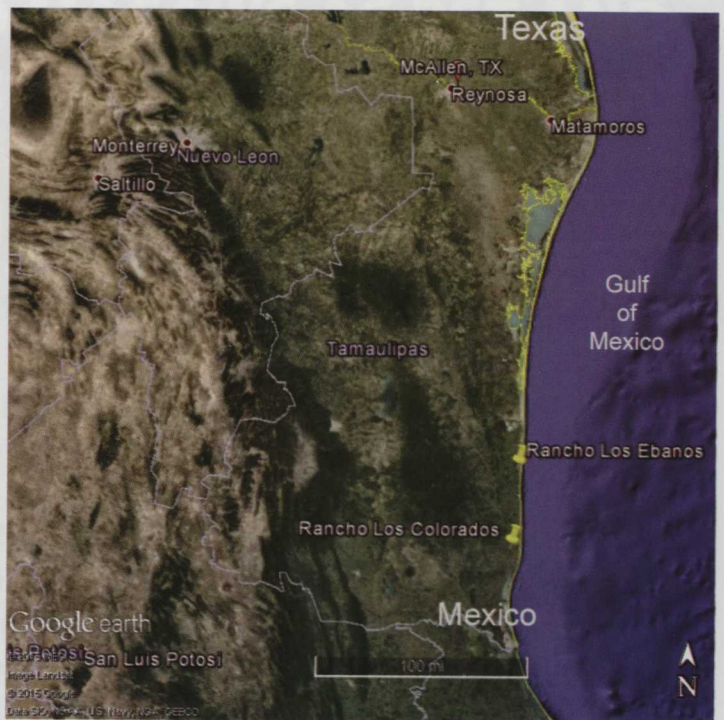


Figure 1. Northeastern Mexico and Southern Texas, with the locations of Rancho los Colorados and Rancho los Ebanos indicated.

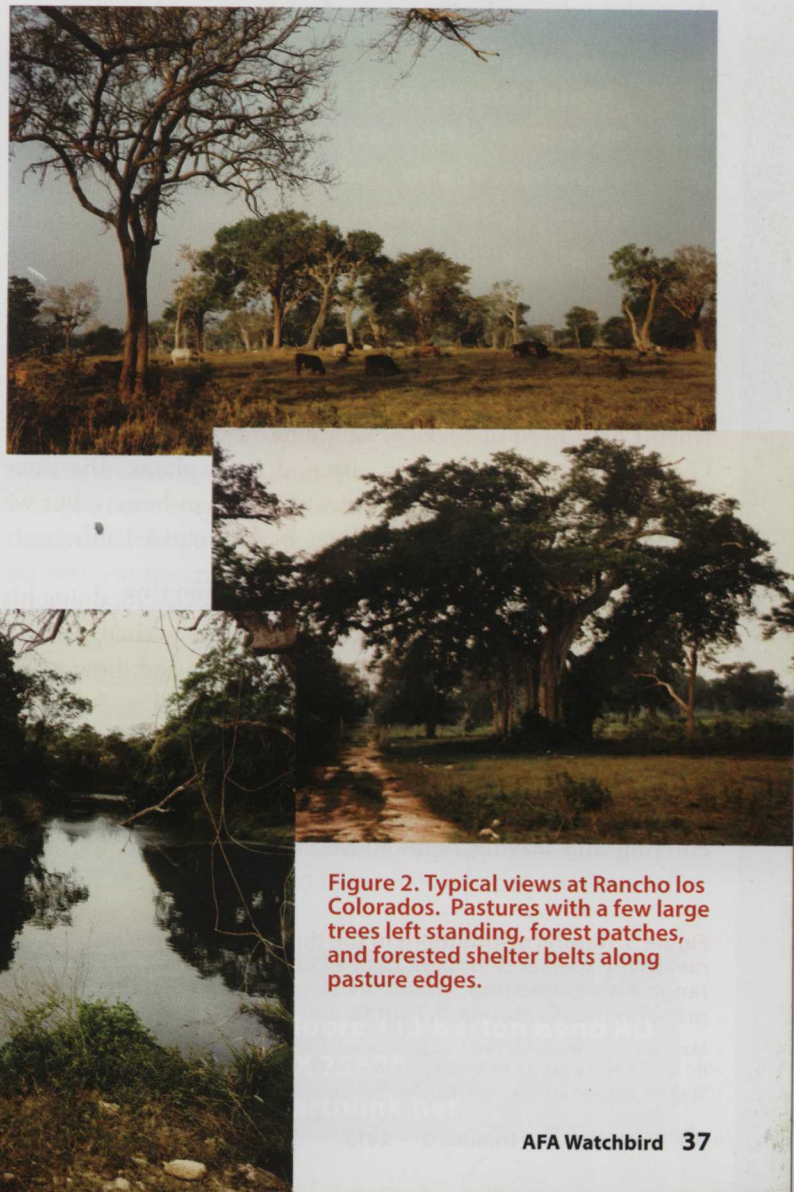


Figure 2. Typical views at Rancho los Colorados. Pastures with a few large trees left standing, forest patches, and forested shelter belts along pasture edges.

to his dissertation: "In the future, the majority of forested habitat suitable for parrots will consist of forest remnants and grazed woodlots within a mosaic of agricultural land use in Mexico...In order to assess how clearing and reforestation practices affect ecosystem functions and biodiversity, regulatory agencies have requested specific information on how parrots and other species use disturbed habitats." [E-H 1995].

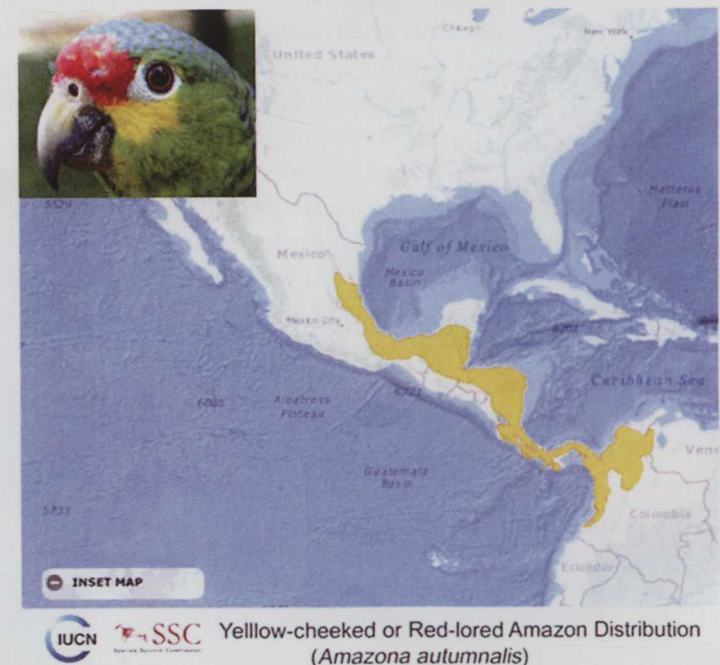
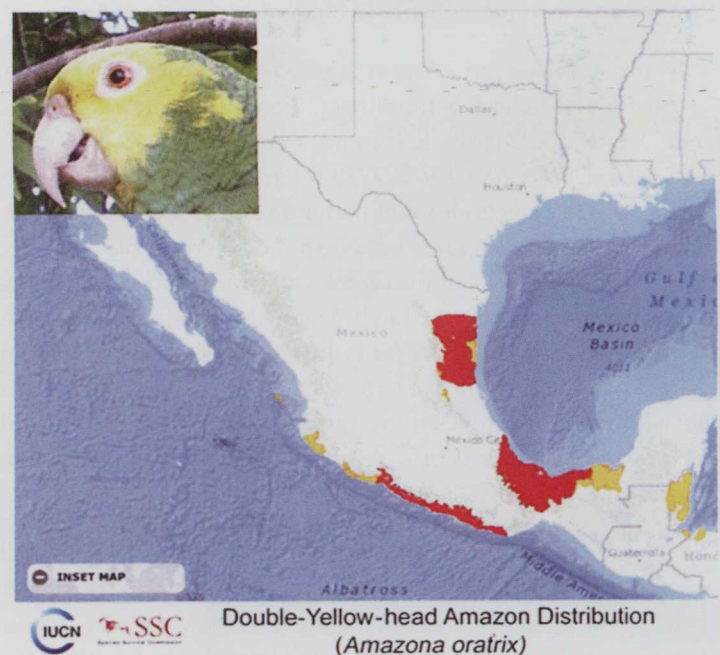
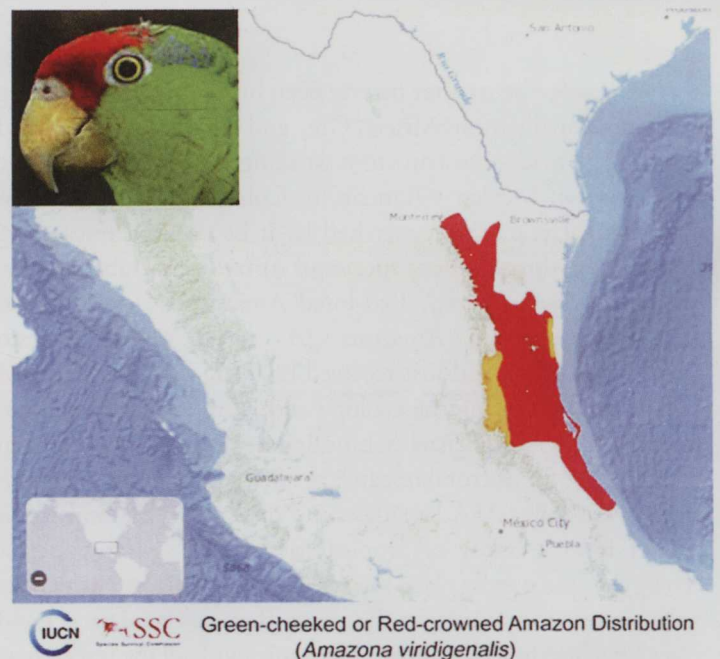
Rancho los Colorados, located on the coastal plain of Tamaulipas, about 5 km from the Gulf of Mexico, was a good location for his work. Three species of Amazons occur "sympatrically" (big word meaning occurring in the same area) on the east coast of northern Mexico (Figure 3). They differ in distribution and physical characteristics; and little was known at the time about their behavioral, ecological and reproductive characteristics. Red-crowned (a.k.a. Green-cheeked) Amazons, *A. viridigenalis*, had (and have) the narrowest distribution; Double Yellow-heads, *A. oratrix*, a wider range, and Red-lore (a.k.a Yellow-cheeked), *A. autumnalis*, the widest distribution. In the pre-WBCA (Wild Bird Conservation Act) world (up to 1992), thousands of all three species were captured each year for the pet trade, many going to the United States.

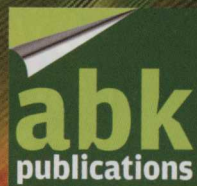
In the rest of the article I will refer to the smallest Amazon, *A. viridigenalis*, as the Green-cheeked Amazon, the next larger Amazon, *A. autumnalis*, as the Yellow-cheeked Amazon, and the largest, *A. oratrix*, as the Double Yellow-head Amazon. The Green-cheeked Amazon was first listed as *Threatened* by the IUCN in 1988, and the Double Yellow-head in 1994, while the more widely distributed Yellow-cheeked Amazon is still considered of *Least-Concern*. While they have been under pressure in their wild locations, these feisty and adaptable birds have established feral populations in southern California, southern Florida, southern Texas, and in some cases Puerto Rico and Hawaii, with the Green-cheeked Amazons being the most successful and Double Yellow-heads the least. Several times when I have been in Mexico, I have heard the piercing cries of Green-cheeks as I drove past city and town plazas. The three species may persist in human cities and human houses; but we also want them to continue to thrive in their native lands.

E-H studied the Amazons over seven years, 1992-98, doing his intensive PhD field work 1992-96. His team located nests of all three species and noted where they were found, how many there were, and what characteristics described a "suitable" nest. He determined nesting success and recruitment into the population over the three years and estimated population numbers and variability by counting the numbers of parrots entering and leaving night roosts. He also studied the foods

Figure 3. Natural distributions of the three Amazon species. Red means the species is thought to be extinct in that part of its natural range. Naturalized populations are also found in the United States, primarily in S. California, S. Florida, and S. Texas.

Maps are from the IUCN Red List: BirdLife International 2013. (a) *Amazona viridigenalis*. (b) *Amazona oratrix*. (c) *Amazona autumnalis*. The IUCN Red List of Threatened Species. Version 2014.3. <www.iucnredlist.org>. Downloaded on 07 May 2015.



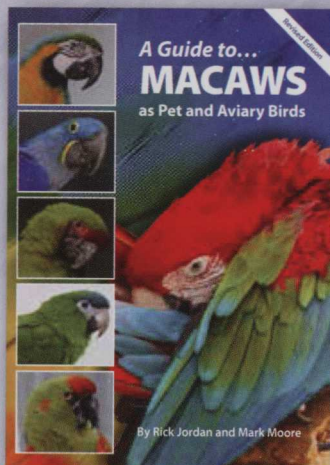


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OVERVIEW

This 214-page title has been eagerly awaited by macaw breeders and pet bird owners since the first edition went out of print five years ago. The revision is written by the original author, Rick Jordan, together with Mark Moore—both highly respected specialist parrot breeders based at Hill Country Aviaries in Texas, USA. This facility boasts some 70 species of psittacines and has been awarded several US First Breeding awards by the American Federation of Aviculture. Rick and Mark are both very active in conservation and provide breeders with support through their knowledge and lectures internationally.

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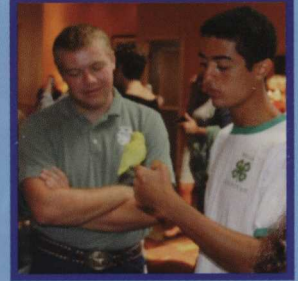
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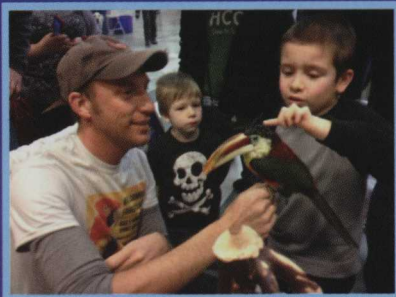
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Figure 4. (Left) Burrow cam with light and camera at the top of the picture and electronics box with viewing screen. Images from the camera are displayed in real time on the screen and the camera can be moved around to see the inside of the nest from different angles and elevations. (Center) Placing burrow cam's camera into a nest. (Right) Moving camera around in nest while viewing images.

consumed by the Amazons and their availability. Most of the following paragraphs summarize the information published in his dissertation [E-H 2005], supplemented by my observations on my trips.

E-H's studies found successful nesting of all three species. A total of 79 nests were located over the 3 years of E-H's study - 37% were Yellow-cheeks, 34% were Green-cheeks; 29% were Double Yellow-heads. Nesting started in March. More nests were actually found in the wooded pastures rather than in the natural forested patches; but perhaps that had to do more with ease of searching. Nest characteristics were quite similar for all three species; and both the Yellow-cheeks and Green-cheeks seemed to prefer to nest close to other members of their species. Green-cheek individuals were more conspicuous than the other species; and their nests were the easiest to locate. Yellow-cheek and Double Yellow-head nests were much harder to find; and the two species seemed to be more sensitive to human presence and flushed sooner. The Green-cheeks had very regular patterns of nest visitation and leaving and returning. When I went out with one of the field technicians, he said he knew exactly when the hen would leave the nest in the morning after feeding the older chicks. He drove up to the Green-cheek nests at exactly the same time each study day, and sure enough, on our way there we typically saw the hen leaving.

An important part of E-H's study was nesting success. His field technicians would periodically (-biweekly) check active nests to see how the chicks were doing. In some cases they just looked inside the nest with a "burrow cam," a small camera on the end of a long line that could be lowered into a nest to see what was inside (Figure 4), and other times removing older nestlings for health checks (Figure 5). The most frequent reason for nest failure was nest abandonment or failure, with eggs not

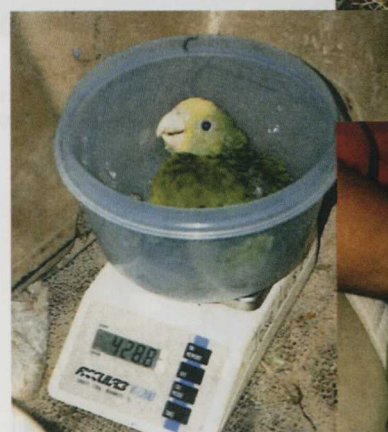


Figure 5. Field work with chicks: collecting out of nests, removing from carrying bag, weighing, taking notes on general health (through interviews of chicks next to him, perhaps?).

hatching or chicks dying of unknown causes. He noted that nest abandonment may have been increased by nest-checks in the case of Yellow-cheeks, which was the species most sensitive to human presence. About 10% of nests failed because of snake predation; and a few nests lost chicks due to flooding. Large parasites such as bot-flies did not seem to occur, and so were not a problem as they have been for many other parrot species. I did notice, however, that the chicks I saw that were removed temporarily from nests were swarming with large numbers of different types (or at least different colors) of mites. However, E-H said nothing about these parasites appearing to contribute to nestling mortality.

Some apparent differences were observed between the three species in terms of successfully producing young. Double Yellow-heads had the largest percentage of non-breeding pairs. Most pairs of Yellow-cheeks and Green-cheeks attempted to nest, but E-H cautioned that the behavior of sub-adults too young to breed may have been different for Double Yellow-heads versus the other two species. Perhaps non-breeders of the other two species roamed more widely than Double Yellow-heads. As mentioned later, the numbers of Amazons counted in the non-breeding season varied enormously, with counts of Green-cheeks being the most highly variable and Double Yellow-heads the least variable. Yellow-cheeks seemed the most likely to desert nests with eggs before hatching. Green-cheeks had more cases of youngest chicks dying (“brood reduction”);

and this species was more likely than the others to desert nests with nestlings. No instances of re-nesting after nest failure were observed. Successful nest sites seemed to be more likely to be used the next year, or at least nest sites in close proximity to previous successful sites. Overall the three species averaged 2 fledglings per successful nest.

Rancho los Colorados apparently had an ample supply of parrot-food species. For example, adults were often observed returning to their nests with full crops as soon as an hour after dawn. Interestingly enough, during the early nestling phase when the hen stayed in the nest most of the time, chicks and females were fed only twice a day (morning and evening, and not at midday), suggesting to E-H that the types of food available on the ranch were of high quality and didn't require many foraging trips to satisfy the nutrition requirements of the females and young. The three most commonly observed food species were ebony (*Pithecellobium ebano*), strangler fig (*Ficus cotinifolia*), and coma (*Bumelia laetivirens*). Ebony and coma were particularly plentiful during the nesting season, while figs were generally available all year round. Green-cheeks fed particularly on coma. During my visits in March and June, I saw ample supplies of green figs on trees and ripe figs on the ground (Figure 6), with plenty of all three species of parrots happily feeding on them. Ebony seeds occur within a tough pea-like pod about a foot long (Figure 6). Michael Schindlinger told me it took some practice and experience for young Amazons to learn how to “unzip” the pod along its edges. I was also told that the smallest species, the Green-cheek, was unable to open the dry pods (August-September), feeding on them only when green or after they had dried and opened up. I gave some of these green pods to a captive African Grey and a captive Double Yellow-head Amazon. The difference in intelligence (or at least their approaches to life) between the two species was immediately apparent: the Grey manipulated the pod for a few minutes, examining it with her feet and beak. She noted the weak “seams” on the edges of the pod and proceeded to unzip the pod along the seams and eat the seeds. The Amazon, however, took a more direct and unsophisticated approach and hacked his way into the pod with his beak, slowly locating the seeds and eating them. That was presumably the way the young wild Amazons started off eating ebony, while gradually observing their elders and experiencing themselves the easier process of chewing into the weaker side seams to reach the inner seeds.

E-H had hoped to be able to estimate the number of resident Amazons on the ranch by counting the numbers observed flying into or leaving a night roost. He predicted numbers at roosts should increase shortly after fledging (July-August), with a decrease over the rest of the year as juvenile mortality occurred, with a low shortly before the nesting season began in March. However, this was not observed. Instead his results were highly variable and difficult to interpret. Numbers varied greatly both by species, by month, and by year, ranging from



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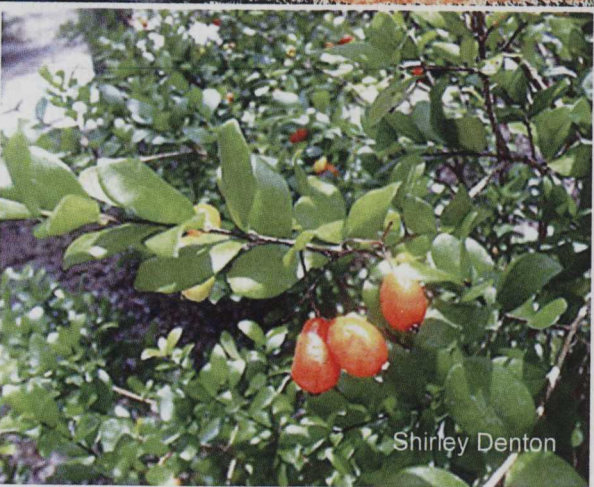
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Shirley Denton

Figure 6. Examples of some foods eaten by the 3 species of Amazons. Left column: Coma tree and ripe coma fruit; middle column: ripe figs all over the ground where Amazons had been feeding, then picture of collection of some common foods, including coma (left), guayabillo (second from left), green ebony pods(second from right, top), and on bottom, ripe guayabillo; right column: ebony pods, with close up of dry pod on bottom.

totals of around 50 to approximately 300. E-H concluded that there were a number of additional roosts in the larger area around Rancho los Colorados; and birds would not always use the same roost, but settled in other roosts at times, possibly as a result of where they were foraging at the time. And similarly, roost numbers might well depend upon food availability in the immediate area. However, the least variability in count numbers occurred during the nesting season, leading to the conclusion that the best estimates of numbers of resident Amazons probably were from counts during March – July.

Some observers have asserted that flying pairs, threesomes and foursomes are likely to represent a breeding pair and its youngsters. This may be the case with some species or in other locations, but was not a clear pattern at Rancho los Colorados. At the beginning of the nesting season, no juveniles were observed with their parents while the parents investigated potential cavities. This, plus other observations, suggested that the parent-juvenile bond only lasted a few months after fledging. During the nesting period when females stayed in the nest, more singles should be seen coming in to roost. This was not the case. In fact, in some

instances males from different pairs were seen flying into the roost together. Michael Schindlinger commented that he observed both stable pairs and trios that he could identify over extended periods. Since the roost counts from E-H's data were less variable during the nesting season, (the period of most consistently abundant food), E-H hypothesized that counts during that time period most likely represented the numbers of the local resident birds that were more restricted in their movements because of nesting and feeding chicks. During the non-breeding season, E-H suggested, there were no such ties to a limited area, and that large foraging flocks formed and moved over the landscape in search of locally abundant food resources, roosting in whatever suitable location happened to be convenient.

In June our Earthwatch team came to help Michael Schindlinger for 10 days. He was studying Amazon vocalizations at the ranch for PhD research at Harvard University. He taught us to distinguish between the calls of the three species. I was surprised at the great differences between them. In particular, the Double Yellow-heads had an incredibly complicated series of different cries, yodels, screams, gurgles, etc. On one of my early days I was introduced to a pair dueting. A Double Yellow-head pair was singing complex antiphonal phrases back and forth as part of maintaining their pair bond and signaling to other Amazons that they were an "item." Michael described to us at least three different sections of the complex song, closing with a series of more rapid calls that he explained as communicating to each other, signaling "Time to fly off, OK? OK!" And sure enough, the pair then flew off. If you aren't familiar with Amazons duetting, Michael Schindlinger has several examples on www.freeparrots.net/parrots/Sound.html. Michael also played for us recordings of Double Yellow-head calls from different parts of its range. Even with our untrained ears, we could hear significant differences between the calls from different populations. Each one at least had its own accent, if not actually its own language. On an AFA zoo trip one year, I heard familiar calls from a pair of Double Yellow-heads at the zoo entrance; and I knew exactly from what part of northern Tamaulipas they originated!

Another parrot researcher, Dr. Tim Wright at New Mexico State University, has developed his whole research program around vocal communication in parrots—in his case, largely with another good talker, the Yellow-naped Amazon, *Amazona auropalliata* (<http://biology-web.nmsu.edu/~twright/>). The great difference between the complicated vocalizations of the wild Double Yellow-heads, particularly when compared with the other two Amazon species, has made me wonder whether talking ability in a parrot species correlates directly with the complexity of their vocalizations in the wild and the variety of their vocalizations. Hence the Double Yellow-head and the Yellow-nape have many particularly complex wild communications compared with other Amazon species, as they are among the best talkers in pet parrots. This leads me to wonder how complicated and complex are the vocalizations among wild African Grey parrots?

This article has summarized the status of and environmental conditions for three species of Amazons at Rancho los Colorados in Mexico in the early mid-1990's. A lot of great research was done on these species, on their numbers, their nesting biology, their behavior, their foods, their vocalizations, etc. However, the big question about the prospects for long-term survival of the populations in the human modified landscape of northern Tamaulipas remained unsurveyed and unanswered, partly because of the individual researchers moving on in their careers, and later because of the increase in violence in northern Mexico. In 2013, E-H, now of the Instituto Tecnológico y de Estudios Superiores de Monterrey, and Donald Brightsmith, of Texas A&M University's Schubot Exotic Bird Health Center, made a brief repeat visit to the ranch with the help of Loro Parque Fundación and the American Federation of Aviculture, Inc. in an attempt to answer some of the questions about the fate of the Tamaulipas Amazons. The next article describes their encouraging findings.

Reference:

Enkerlin-Hoeflich, E. C. 1995. Comparative Ecology and Reproductive Biology of Three Species of Amazona Parrots in Northeastern Mexico. PhD Dissertation, Texas A&M University College Station, TX.

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