Ecology of the Yellow-naped Amazon *in Guatemala*

by Victor Acedo
Paradise, Valley, Arizona

The Yellow-naped Amazon *(Amazona auropalliata),* is one of the most popular psittacines in aviculture today, and like most psittacines in captivity little is known of its ecology. We know that they do well in a captive environment and much has been done to improve diets there and give them all that is necessary for their reproductive success. But what do we really know of their actual needs?

Since 1985, and more intensively in the last six months, I have spent my time studying this question. I have observed the Yellow-naped Amazon *(A. auropalliata)* on the south coast of Guatemala, particularly in the area of Santa Rosa, where the populations which still exist in the wild are concentrated. Here, 30 miles from the El Salvadoran border, where the land has been heavily disturbed and deforested (principally for large cattle and sugar cane ventures), where heavy use of pesticides is common, and where habitat is further denuded by the locals cutting firewood, trapping wildlife and planting their subsistence plots of corn, the Yellow-naped Amazon exists in the small ecological niche left to it.

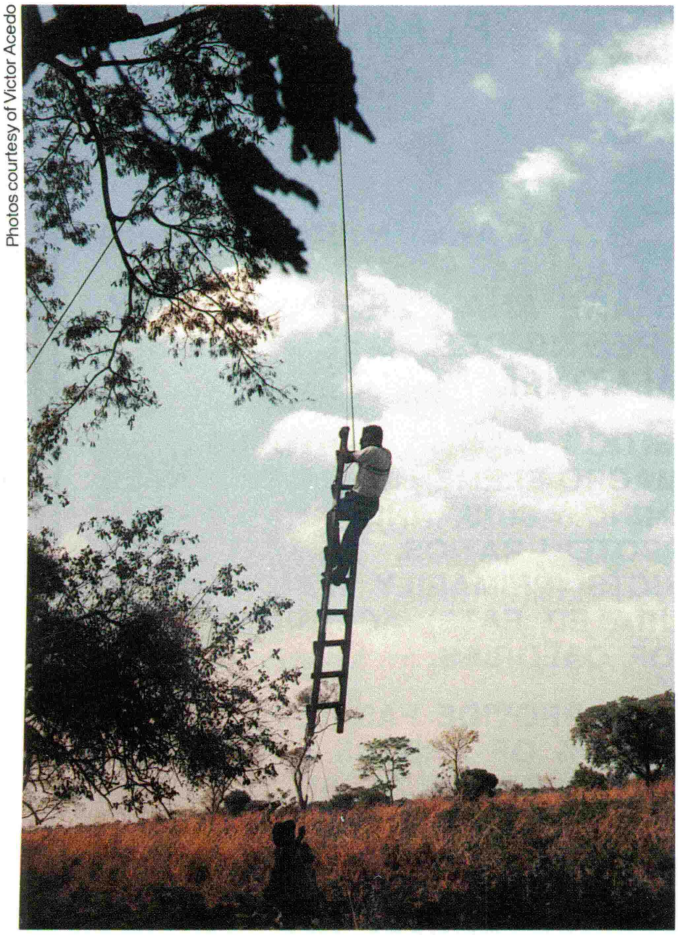
In studying the diet of the Yellow-naped Amazon during its breeding season (roughly, December through April), I began by locating private Fincas (large private land holdings) with active nests then in use by Yellow-naped Amazons. I succeeded in locating six active nests, and secured permission to observe four. By studying these nesting pairs and following these birds on their daily flights to feeding areas, by observing non-nesting Yellow-naped Amazons in other feeding and roosting areas, by examining the crop contents of the chicks in the nest, and by conducting local interviews, I have identified 22 species of trees used by Yellow-naped Amazons as a food source

during their breeding season.

The following list sets forth those 22 trees by local common name, what part of the seed or fruit is consumed and at what stage of the seed or fruit's development and, where data is available, a breakdown of water/protein/carbohydrate/fat/cellulose content for each source. To the extent other psittacine species feed from the same food source, I note same. Finally, the list sets forth trees by relative popularity in the Yellow-naped Amazon's diet.

I consider the list to be complete for the dry/breeding season (November through April) and for the study area. Many of these trees fruit more than once a year, i.e. *Sterculia apetala* will fruit up to three times a year giving the Yellow-naped Amazon a certain consistency in its diet throughout the year. There are undoubtedly other foods utilized during the non-breeding (rainy) season.

Photos courtesy of Victor Acedo



The materials which were needed to inspect the nesting chambers included a ladder, rope, pulley, horse (not pictured), and plenty of guts.

The nests of the White-fronted Amazons were more numerous toward the coast. They were commonly found in dead trees that were used as firewood locally. These were dead palms.

A closer view: the White-fronted Amazon nest was surprisingly shallow.

Victor Acedo had to devise a stick with which the Yellow-naped Amazon chicks were removed from the nest for inspection and records. They were always replaced successfully.

Moreover, the rainy season is the time when agriculture is at its peak and the Yellow-naped Amazon has been observed flying down to corn fields (Milpas) therefore being more of a pest and more dependent of agricultural crops than in the dry/breeding season.

One interesting conclusion I came upon was the decided preference for four of these trees, the Castano, Maranon, Ceiba and the Conacaste tree. They form the vast bulk of the Yellow-naped Amazon's diet – a general impression confirmed by examination of the crops of the chicks (at roughly four weeks of age) in the nest. Other sources, such as *(Bursera simaruba),* were of far lesser importance and were utilized only sporadically or as alternatives when its preferred food source was not in the vicinity of the nest. Why the concentration of these four trees when other foods were available in the area? Perhaps the answer lies in the common attributes of these four trees: high protein and fat content and low water content.

Does it not make sense that Yellow-naped Amazons at nesting time will concentrate on high fat, cost-efficient foods for the rapid development of chicks? Might the needs of parenting chicks also explain the avoidance of fruit intake? For example, the fruit of *Anacardium occidentale* (cashew fruit) was abundant at this time but was never consumed (the parents eating the nut only). Thus the hypothesis is that parents want a low water intake. Moreover the Yellow-naped Amazon was never observed by myself or by the natives to drink water. This may be due to the fact that they want to decrease the water intake in the nest cavity. Similarly, this and other fruits give comparatively less food value for the development of chicks and would be digested far quicker than the thick pulp of the preferred foods. In other words, the preferred foods permit the parents to visit the nest as little as possible, thus drawing less attention to the nest. This gives the nest less ''color'', as the natives say, for the parents would come and feed the chicks only twice a day (between 9:30 and 10:00 a.m.; and again at dusk, between 6:00 and 6:30 p.m.). All the other time was spent away from the nest—but always with at least one parent bird being at close visible/vocal range of the nest tree. I did observe that in the first few weeks of hatching, the parents stayed a bit closer to the nest, generally in the boughs of the nest tree itself. This was possibly to protect the newly hatched chicks from the White-throated Jays *(Calocitta formosa)* that would frequent the nest tree, and from the Collard Aracaris *(Pteroglossus torquatus)* who were nesting in the same tree.

A second interesting observation is that by and large the Yellow-naped Amazon depends upon wild, non-cultivated food sources despite the availability of cultivated crops (i.e., papaya, citrus, etc.). The two exceptions to this rule were maranon and mango. Yet as a broad generalization it might be said the Yellow-naped Amazon is less the pest than has been previously thought. Whether this finding would apply to other areas of the south coast of Guatemala, where agriculture is more intensive still, thus giving rise to areas where there are fewer trees—hence fewer sources of food—is not known. It has been observed that the Yellow-naped Amazon in the Mazatenango area, some 75 km from the Mexican border, flies to feed, roost and nest in elevations much higher than their customary

Photos courtesy of Victor Acedo

Records included measurements and crop and fecal contents.

Crop contents included four types of seeds. They can be seen underneath the thin skin.

habitat. Similarly, the degree to which my particular study area represents a standard is also problematic. For example, the Mahogany seed has been observed to be utilized where such trees still occur, although these trees have disappeared in the study area.

There are many questions that need to be answered in relation to their diets in the wild. For example, does the the Yellow-naped Amazon rely on other food sources in the rainy season (May through October)? Specifically, although many of the species listed above fruit several times a year, thus affording a certain consistency to the Yellow-nape's diet, the parents do feed on different foods other than they would when nurturing growing chicks. And what other trees are fruiting at this time which are unavailable during the breeding season? To what extent do they turn to cultivated crops? And why is it that all the birds in the study area were observed to have large yellow patches on the nape? In captivity the yellow patch does not appear until after the second or third year. Could it be some dietary deficiency in their captive diets or is this an indication that few chicks ever make it to adulthood, poaching being one of the more evident answers or is it the lack of optimal nesting/roosting conditions that has limited the amount of chicks that make it to fledgling age? And what about adaptability. Are these birds relying on other food sources when they are forced into new habitats?

It is certain that there are many more questions to the riddle of diets for the Yellow-naped Amazon in the wild. The answers need to be forthcoming if we are to provide our captive population of psittacines with a better diet. And more importantly to provide the data to develop effective strategies for the conservation of this wonderful bird which is struggling to survive in a land that is increasingly being used for a growing human population. ●

CODES

Dependents:
- A = Yellow-naped Amazon (A. auropalliata)
- Al = White-fronted Amazon (A.a. albifrons)
- C = Orange-fronted Conure (A.a. canicularis)
- H = Green Conure (A. holochlora)
- J = Orange-chinned Parakeet (B.j. jugularis)

Growth Stage:
- G = Green (tender)
- R = Ripe
- D = Dry

Trees offering natural food sources for Yellow-naped Amazons and other Central American parrots

Common Name:	Castaño	*(Sterculia apetala)*
Dependents:	A, Al, C	Growth Stage: G seed
Composition:	12.94% water, 21.66% protein, 6.78% carbohydrates, 48.78% fat, 5.90% cellulose, 3.94% ash	
Common Name:	Marañon	*(Anacardium occidentale)*
Dependents:	A	Growth Stage: G seed
Composition:	5.10% water, 29.02% protein, 12.50% carbohydrates, 47.88% fat, 2.00% cellulose, 3.50% ash	
Common Name:	Ceiba	*(Ceiba pentandra)*
Dependents:	A, Al, C, H, J	Growth Stage: G seed
Composition:	30 to 40% fat	
Common Name:	Conacaste	*(Enterolobium cyclocarpum)*
Dependents:	A, Al	Growth Stage: G seed
Common Name:	Cenisero	*(Pithecolobium saman)*
Dependents:	A	Growth Stage: G seed, D seed cover
Common Name:	Ixcanal	*(Acacia hindsii)*
Dependents:	A, Al, C, J	Growth Stage: G seed
Common Name:	Guachimol	*(Pithecolobium dulce)*
Dependents:	A, Al, C J	Growth Stage: G seed
Composition:	59.70% water, 8.48% protein, 16.80% carbohydrates, 5.50% fat, 8.12% cellulose, 1.40% ash	
Common Name:	Papaturo	*(Coccolobis uvifera)*
Dependents:	A, Al, C, H, J	Growth Stage: G seed, D seed cover
Common Name:	Caspirol	*(Inga puctata)*
Dependents:	A, Al, C, J	Growth Stage: G seed
Composition:	11.96% water, 27.32% protein, 50.23% carbohydrates, 1.00% fat, 6.84% cellulose, 2.63% ash	
Common Name:	Piñon	*(Jatropha curcas)*
Dependents:	A, Al	Growth Stage: G seed
Composition:	45 to 50% fat	
Common Name:	Ujushte	*(Brosimum alicastrum)*
Dependents:	A, Al, C, H, J	Growth Stage: G seed
Composition:	54.53% water, 7.48% protein, 24.18% carbohydrates, 2.12% fat, 8.26% cellulose, 3.53% ash	
Common Name:	Palmera	*(Sabal mexicana)*
Dependents:	A, Al, C	Growth Stage: G nut
Common Name:	Palo Jiote	*(Bursera simaruba)*
Dependents:	A, Al, C, H, J	Growth Stage: G seed, shoots
Common Name:	Tiguilote	*(Cordia dentata)*
Dependents:	C, J	Growth Stage: G seed
Common Name:	Caulote	*(Guazuma ulmifolia)*
Dependents:	A, Al, C, J	Growth Stage: D seed and casing
Common Name:	Madre cacao	*(Gliricidia sepium)*
Dependents:	A, Al, C, J	Growth Stage: Flower
Common Name:	Amate	*(Ficus glabrata)*
Dependents:	A, Al, C, H, J	Growth Stage: G mesocarp
Composition:	80.46% water, 1.02% protein, 14.86% carbohydrates, 0.33% fat, 2.72% cellulose, 0.62% ash	
Common Name:	Mango	*(Mangifera indica)*
Dependents:	A, Al, C, H, J	Growth Stage: R mesocarp
Composition:	80.66% water, 0.83% protein, 16.42% carbohydrates, 0.02% fat, 1.64% cellulose, 0.44% ash	
Common Name:	Guayaba	*(Psidium guajava)*
Dependents:	A, Al, C, J	Growth Stage: G, R mesocarp
Composition:	82.70% water, 1.36% protein, 12.06% carbohydrates, 0.32% fat, 3.06% cellulose, 0.50% ash	
Common Name:	Jocote	*(Spondias)*
Dependents:	A, Al, C, J	Growth Stage: G, R mesocarp
Composition:	81.48% water, 0.04% protein, 17.00% carbohydrates, 0.23% fat, 0.32% cellulose, 0.21% ash	
Common Name:	Annona de mico	*(Annona squamosa)*
Dependents:	A, Al, C, J	Growth Stage: R mesocarp
Composition:	75.95% water, 2.00% protein, 22.44% carbohydrates, 0.40% fat, 2.26% cellulose, 0.94% ash	
Common Name:	Annona colorada	*(Annona reticulata)*
Dependents:	A, Al, C, J	Growth Stage: R mesocarp
Composition:	68.64% water, 2.45% protein, 22.62% carbohydrates, 0.42% fat, 4.80% cellulose, 1.00% ash	