

NEWS FROM ACADEMY BAY

PLANT NURSERY AT CDRS

The Botany group at the CDRS has constructed a plant nursery at the Station where they are conducting experiments with several species of Galápagos plants. Many of the individuals have come from germination experiments begun in controlled laboratory environments. The *Opuntia* seedlings germinated in an experiment by Sabina Estupiñan and David Hicks, are growing well. Of the 40 tiny cacti, some have been transplanted into a native garden. We may someday have an answer to the questions of age and growth rates in *Opuntia*! Other individuals will be given to interested people willing to plant *Opuntia* as an experiment for the future. In addition to the *Opuntia*, individuals of *Scalesia*, *Croton* and most importantly, 30 of the rare and endangered *Calandrinia galapagosa* from San Cristóbal. These *Calandrinia* will soon join the 50 or so raised by Jorge Sotomayor, the CDRS representative on San Cristóbal, which were repatriated 6 months ago within the fenced natural population. This attempt to rebuild a small threatened population was very successful (only about 15% mortality) and was the first repatriation of a species of plants in Galápagos. The *Calandrinia*, *Scalesia helleri* and *S. crockeri* were germinated from seeds as an experiment conducted by Milton Arsiniegas. Other plants in the nursery are: 4 matazarno (*Piscidia carthagenensis*), 50 *Croton scouleri*, 6 flame trees (*Erythrina velutina*), 15 Galápagos cotton (*Gossypium darwinii*), 10 *Scalesia helleri*, 7 *Scalesia crockeri*, *Sesuvium edmondstonei*, 3 *Clerodendrum molle*, and 6 *Cordia lutea*.

Ironically the main predator on the defenseless seedlings are Darwin's finches. Wire cages had to be constructed to protect the tiny seedlings from fatal "pruning" by their endemic neighbors!

About a year ago a "minga" (community effort) was held by Station personnel to clean up an overgrown area behind the Museum/Library. The area was transformed into a native plant garden, for species of plants which occur on Santa Cruz from coastal zone where the Darwin Station is located. There are adult specimens of various plants such as *Cryptocarpus pyriformis*, *Croton scouleri*, *Maytenus octogona*, *Opuntia echios*, *Clerodendrum molle*, *Cordia lutea*, *Cyperus andersonii*, and *Tournefortia psyllostachia* and *T. pubescens*. Several station residents raised what they thought to be native cotton plants from seedlings and these were some of the first new plants placed in the native garden. Later they were found to be the introduced cotton *Gossypium hirsutum*, and now those plants are slowly being removed and individuals of the proper endemic cotton, *Gossypium darwinii* Watt, (Paul Fryxell,

1979) have been germinated and are growing well enough to soon be transplanted. The native garden has several lovely young *Scalesia helleri* from the population just beyond Tortuga Bay. Naturally, they came from a germination and growth experiment by Milton Arsiniegas. Hopefully both the nursery and native garden will support a variety of native and endemic plants which serve as examples for utilizing Galápagos plants in community landscaping as well as a site where scientists, students and interested people can easily view and learn some of the plants. Several people from the Botany Group have done a great job in maintaining the garden and adding native plants around the station grounds. Many will yield valuable information about their natural history but in the meantime we all receive the benefit of their beauty. *Heidi M. Snell, André Mauchamp, and Iván Aldáz.*

TORTOISES FROM CERRO PALOMA, ISABELA THREATENED

The tortoise population of Cerro Paloma (between Sierra Negra and Cerro Azul, Southern Isabela) may be closer to extinction than the Española population was in the 1960's -70's! There are apparently less than *twenty* individuals, and so far we (CDRS & SPNG) have found only two adult females (the surviving Española population was twelve females; and three males, two mature and one immature).

A molecular genetics study now being completed by Edward Louis of Texas A&M University indicates that this population appears distinguishable from the others of southern Isabela (Louis personal comm.). So with only two mature females from Cerro Paloma, the situation is grim.

There are currently eleven tortoises from Cerro Paloma in the Arnaldo Tupiza Chamaidan Breeding and Rearing Center in Puerto Villamil: 4 adult males, 2 adult females and 5 juveniles of unknown sex. One of the females has nested and we anxiously await the first hatchlings from this group. Park wardens continue to search the Cerro Paloma area for additional tortoises. We believe there are at least a few adult males left. Ironically, the original population was relatively intact up until around 1946-1959, when the penal colony of Villamil sent out prisoners to kill the tortoises and collect their oil for export to the continent. This intense predation which has declined but continues even now, has brought this population to the brink of extinction.

Linda Cayot and Heidi M. Snell

GOATS DAMAGE VOLCÁN ALCEDO, ISABELA

Since the early 1990's the population of feral goats previously limited to the southern slopes of Volcán Alcedo, Isla Isabela has grown to tens of thousands. These goats have caused serious destruction of vegetation centered on the southern rim and slopes, the very area where tortoises concentrate in the dry season. Because it is a small region, the destruction has been rapid. Due to extremely steep slopes, erosion could be devastating with the coming rains of 1996. A major Alcedo Campaign was initiated in 1995 with the following objectives:

1. Goat control and eventual eradication.
2. Long-term monitoring of vegetation and tortoise populations.
3. Development of a proposal for long-term research and management for the entire island of Isabela.
4. A major fund raising campaign.

We have available a seven-minute video documenting the damage to Alcedo and the activity of the goats for any of our readers who are interested in donating to this campaign or who would like to help us spread the word to other potential donors. If you want to donate to the campaign or receive a copy of the video, please contact Johannah Barry of the Charles Darwin Foundation, Inc. (see inside front cover). This video will also be available in European format (PAL) in early 1996. For Alcedo and the giant tortoises, time is critical.

Linda Cayot and Heidi M. Snell

COLLECTIONS AT THE CDRS MUSEUM

The CDRS Museum is a place where students, visitors and scientists gather. It has a small reference collection of organisms collected in the Archipelago since the founding of the Charles Darwin Research Station. The mollusk, fish, bird, reptile and insect collections are being well curated and managed. Catalogs have been entered in computerized databases to facilitate access of the collection information.

Curatorial work has been sporadic throughout the history of the CDRS Museum mainly due to lack of interested or experienced personnel and, as always, a shortage of funds. At the present the Station is fortunate to have Lazaro Roque Albelo, B.S., a Station volunteer with experience working in Natural History Museums in his native country of Cuba. Unfortunately the Station does not have the funds to continue this work. Any donations to help maintain the collections and their curation will preserve the efforts of scientists and community members interested in the conservation of Galápagos.

Heidi M. Snell and Lazaro Roque

GOATS ON PINTA - AGAIN?

Some time during the middle to late 1950's, a male goat and two females were released onto Isla Pinta by local fishermen. These goats multiplied rapidly and by the early 1970's they were the direct cause of severe destruction to the soil and vegetation. The Galápagos National Park Service began a hunting campaign which suffered from sporadic funding for almost twenty years. Because the campaign was not a constant effort, the population of goats was able to frequently rebound from several thousand to the estimated standing population of 15,000. Effectively, the campaign had to start anew every-time that the population increased when funds for continued hunting were lacking. Due these rebounds it was necessary to kill an estimated 40,000 goats before the population was apparently eradicated in 1990. Since then a few scientists and park wardens have visited Pinta for other projects, but no goats were ever reported from those recent trips.

Unfortunately, a rumor tracked down at the end of August 1995 was based on fact. At least six goats had been seen on Pinta once again. Once the rumor was verified, National Park personnel were notified and they immediately sent a hunting group of four men to Pinta. The group was on the island six days and killed four goats, one adult female and three juveniles, and they found evidence of additional goats.

During September eight hunters and three dogs made another trip of five days. Three groups were formed to cover the island more efficiently as the vegetation is quite dense in some areas, making locating the goats difficult. During this trip three males and eight females were eliminated from a group of approximately twenty-five animals. That left at least fourteen known goats on Pinta, however, four of the eight females killed were pregnant at the time, so their numbers were constantly increasing.

A third trip was made during the last half of November, this time with seven hunters. They divided into two groups and were on the island for five days. They killed ten goats, four males and six females, both adults and juveniles. Four goats escaped onto the lava and were not seen again. The Park plans to send another hunting group to continue searching and eliminate the remaining goats. The experienced hunters will use colors and markings of the goats to recognize individuals and to identify those which they are unable to kill. This way different groups of hunters will know if they are dealing with previously observed goats. When the numbers get low and the individuals are recognized, then the hunters can be reasonably sure when the eradication is complete. Hopefully that will be very soon.

Unfortunately, it is possible that these goats represent a new introduction to Pinta. However, at this time we can't rule out the possibility that a few remained from the previous campaign.

Heidi M. Snell and Howard L. Snell

IS THERE A GUADALUPE RIVER IN GALÁPAGOS?

In July of 1995 a new boat for the Galápagos National Park Service arrived in Puerto Ayora. The *Guadalupe River* was constructed in 1980 and served as a crew boat for oil drilling platforms in the Gulf of Mexico. She is powered by three Detroit Diesel engines which exceed a total of 2,000 hp and give a maximum cruising speed of 17 to 20 knots. She is 101 feet long, with a hull constructed of aluminum. Combining her great horsepower and her aluminum construction yields a very light and fast vessel. Her decks can support a cargo of 30 tons which makes her ideal for a wide variety of uses. She has derricks and winches for loading smaller vessels aboard. This allows her to serve as a mother ship for wide ranging patrol activities combining the *Guadalupe River* with a number of smaller launches. Her satellite navigation system and radios will promote the accuracy necessary for patrolling the Galápagos Marine Reserve, where various activities are restricted to different distances from shore.

The current crew is seven and will soon be increased to 8 since many of the patrol routes will require trips lasting longer than 24 hours. The boat was originally designed to move people quickly for short trips lasting less than a day and was constructed with seats for 45 persons in the two forward cabins. Unfortunately, she had very little sleeping space. The Park Service is dividing the forward two cabins into eight with several berths each. With the extra cabins there will be space for additional personnel from the Ecuadorian armed forces. These military personnel will provide armed patrol trips around the islands in conjunction with the Galápagos National Park Service. Obviously the character of conservation management in the Galápagos has changed!

The *Guadalupe River's* tasks have been wide-ranging and numerous already. She has made several trips to the western side of the Archipelago and once brought back pangas confiscated from illegal fishing camps. She regularly carries hunters and researchers with assorted equipment to various islands. She has carried school children on educational visits and on one occasion a large number of teachers attending a course held by the Park. The *Guadalupe River* was instrumental in mobilizing the large group of volunteer searchers sent to Santa Fe when a student was lost there. Because she is so fast and can easily carry cargo on her tremendous aft decks, she is an

ideal vessel for the National Park Service. Though she now resides far from her namesake the *Guadalupe River*, Texas, USA, she is a welcome and needed addition to everyone supporting the Conservation of Galápagos.

Heidi M. Snell & Michael Bliemsrieder

EASTERN KINGBIRD SIGHTING

Diego Andrade Torres, a Galapagos Guide, along with Paul Coopmans as tour leader of a British birdwatching group, identified an Eastern King Bird on Isla Santa Fé on the 9th of June of this year. This group was ashore in the early afternoon and saw the Eastern King Bird at the Northern end of the tourist area in a large *Opuntia* forest.

WORDS OUT OF THE PAST

While reading about the Galápagos in the published works of D. Porter of the *U. S. Frigate Essex* during the latest occupation of the CDRS in the first days of September 1995 (see *Conservation Gets Personal* later in this issue), I found the following paragraph of interest:

"I shall leave others to account for the manner in which all those islands obtained their supply of tortoises and guanans, and other animals of the reptile kind; it is not my business even to conjecture as to the cause. I shall merely state, that those islands have every appearance of being newly created, and that those perhaps are the only part of the animal creation that could subsist on them, Charles' and James' being the only ones where I have yet been enabled to find, or been led to believe could be found, sufficient moisture even for goats. Time, no doubt, will order it otherwise; and many centuries hence may see the *Gallipagos as thickly inhabited by the human species as any other part of the world* (emphasis mine). At present, they are only fit for tortoises, guanans, lizards, snakes, etc. Nature has created them elsewhere, and why could she not do it as well at those islands?" -D. Porter *Cowan's Bay (James Bay) August 1813*

It seemed ironic that he wrote the words 182 years almost to the day.

Heidi M. Snell