THE HSPR NEWSLETTER

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Our next meeting of the HSPR will be at 9:30 AM on **Sunday, June 9, 2002** hosted by Dr. German Charron in Corozal (Bo. Magueyes) on Carr. 568, km 10.1 (see the map at the end of this Newsletter). German will also give a talk about the 200 heliconias cultivated in Puerto Rico that are not described in Berry and Kress' book.

Please remember to bring your refreshments, chairs and plants for the raffle, sale, or exchange. Also, as always feel free to bring any new or interesting plants for the "Show and Tell", as well as any information or observations you have acquired about heliconias and other Zingerberales recently.

HSPR OFFICERS: 2002-2004

Congratulations to the new officers who have graciously 'volunteered' to serve from 2002 - 2004 for HSPR:

PRESIDENT:	Emilia (Sherry) Ballester
VICE-PRESIDENT:	Bryan Brunner
SECRETARY:	Mary Strow
TREASURER:	Malenia Rivera

(EX) PRESIDENT'S CORNER

Sooner or later, and for a variety of reasons, all heliconia growers eventually try to grow heliconias from seeds. As with most people I have had variable success in germinating heliconia seeds. Are some unknown factors responsible for the success or failure of germinating seeds? A recent report in the journal *Nature* (vol. 414; p 406; November 22, 2001) provides some possible insights into this question.

Following 'conventional procedure', I soak heliconia fruits for several days to allow the pulp surrounding the seeds to rot away before planting. In some respects, this procedure mimics the natural process of seeds passing through the guts of birds or other animals feeding on heliconia fruits. There is ample reason to believe that heliconia fruits are adapted for feeding by birds. The prominent purple color of mature fruits of New World heliconias and their exposed position on the bract probably serve as advertisements to birds. In addition, these birds are probably beneficial for heliconias. First, birds disperse seeds away from the parent plant. Without this dispersal mechanism it would be practically impossible for many heliconias to maintain their natural distribution patterns. How else can our native *H. caribea* disperse seeds uphill from the parents? Second, pulp removal may be beneficial because the pulp promotes the growth of bacterial and fungal diseases that kill seedlings. Third, the thinning and abrasion of the seed coats by digestive acids and the gizard may promote quicker and more successful germination of seeds. An example of this explanation involves the Dodo bird of the Mauritius Island in the Indian Ocean. Several years ago scientists reported that no individuals of a tree species on Mauritius was less than 200 years old despite successful seed production. Because this time period coincided with the extinction of the Dodo, these scientists suspected that seed germination required passage through the Dodo's gut. To test this idea, seeds were fed to turkeys which are approximately the same size of the Dodo. These seeds successfully germinated. Problem solved!

With the Dodo as a model example, the general consensus among botanists is that hard-shelled seeds germinate more successfully after passage through the digestive systems of birds because of the thinning of the seed coat (in addition to the removal of the pulp). For this reason many planters sandpaper or otherwise weaken the coats of hard seeds before planting. The recent report in *Nature* indicates that the situation is more complex. These investigators fed seeds of various plant species to several bird species of the Mediterranean. Seeds of some species germinated more quickly and successfully, but other seeds germinated less quickly and less successfully depending upon the particular plant and bird species tested. Examinations of the seed coats by electron microscopy indicated that these patterns could not be explained by the simple chemical or physical abrasion of the seed coat. Instead, there seems to be more complex chemical processes involved. Chemical interactions are also the best way to explain the delayed germination of seeds after passage through the guts of some (but not all) bird species. To be sure, chemical promoters of seed germination are known for other plants. For example, chemical products of wildfires are required for seed germination of some plants along the California coastline. However, the report in *Nature* is the first indication that such complex chemical processes may also occur in the guts of birds.

Could a similar situation hold for birds that feed on heliconia seeds? All I know is that my attempts to hasten heliconia germination by sandpapering seed coats have been unsuccessful to date. Certainly, there may be other reasons for the failure of these attempts. For instance, Stiles and Daniels (1979, *Brenesia*, Supl. 1) speculate that heliconia seeds in mature fruits are themselves immature. Thus, some passage of time is required before the seeds mature and germinate. On the other hand, it is well-recognized that the pollination of heliconias by hummingbird species is highly specialized and are beneficial for both. It seems possible that a similar situation also holds for heliconias and birds that eat their fruits. For example, early germination would be beneficial if the rainy season is early, while delayed germination would be beneficial for late rainy seasons. Given a variable onset of the rainy season, the best overall strategy would then involve a combination of early and late germination.

Finally, whether any of the preceding speculations are true remains to be seen. I have pointed them out largely to emphasize how little we know about seed germination in heliconias (and the biology of heliconias in general). With our collective interest and expertise, I believe that the HSPR could make some valuable contributions in this regard.