

Trip Report
Mexico
April 18 – 26, 2011

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Photos by Sheryl Costello (I forgot my camera)

Sheryl Costello, R2 FHP entomologist, Brian Sullivan, SRS entomologist, and I travelled to Mexico in April 2011. The purpose of the trip was to continue a cooperative project with ECOSUR on a new species of *Dendroctonus* bark beetle in Mexico and Central America. The objectives of the visit were:

1. Collect specimens of the new species and the southern pine beetle, *Dendroctonus frontalis*, for studies;
2. Demonstrate procedures for measuring bark beetle infestation growth and brood stage development to Alicia Niño, a graduate student who has been working on the project;
3. Discuss bark beetle management and cooperation with staff at Lagos de Montebello National Park;
4. Collect bark beetle specimens in Guatemala, including the elusive *D. vitei*; to help support the designation of a new species; and
5. Repair the GC-EAD at ECOSUR in Tapachula.

The original plan was to spend one week in Chiapas, Mexico at ECOSUR and the National Park, then a second week in Guatemala. Unfortunately, the week before we left the plan to travel by bus from Tapachula to Guatemala City was not cleared due to safety concerns. We were told we could fly to Guatemala City, but this option cost about \$1500 vs. \$52 for round-trip bus fare. Given the late notice and the additional expense, we decided to cancel the Guatemala segment of the trip and return early.

We flew into Tapachula on Monday, April 18. We were met at the airport by Alicia and her husband Kino. They transported us to ECOSUR, where we unloaded the field equipment for the trip to Lagos de Montebello. Afterwards we went to the Hotel Don Miguel for supper. After a quick trip to the local OXXO for necessities (galletas y cerveza), I retired to my room, exhausted after my free upgrade to first class on the flight from Houston.

Tuesday morning we returned to ECOSUR and Brian began to work on the GC-EAD. He cleaned out the injection ports and was able to get it functioning properly. Meanwhile, Alicia, Sheryl, and I gathered supplies for the field work. We were able to assemble a dozen twelve-(or vice versa) funnel traps. I sharpened the hatchet, which helped it to easily slice into my finger later in the trip. Alicia and I also took a quick trip to the local Casa Depot to pick up a small allen wrench Brian needed. In the afternoon we held a Skype session with Jorge Macías-Sámamo and Gerardo Zúñiga, fellow cooperators on the project. Jorge now works for Synergy Semiochemicals in Canada, while Gerardo is with Escuela Nacional de Ciencias Biológicas, Instituto Politécnico Nacional in Mexico City. We also had a chance to meet Dr. Pablo Liedo Fernández, the main director of Ecosur. He was very supportive of the project and Alicia's work.

Wednesday morning we took off for Comitán in an Ecosur van. Kino was the driver, with Alicia and their son Pablo in the rear seat. The van was completely loaded down with people and equipment. The windy road over the mountain took its toll on the passengers (Queasy Rider?). We arrived at Hotel Laureles and learned we had been booked for only one night instead of four. It was the week before Easter, traditionally a big vacation time, and most of the hotel rooms in town were booked. The management of the Laureles took us to Hotel Hero, which had availability. Given the name, it seemed appropriate for me. The rooms were nice, and included a matrimonial suite for 3 people (Big Love?). We then learned that Alicia's in-laws had been calling hotels and had booked us in Hotel Bugambilias, which I hoped didn't mean walking bugs. The hotel was nice, and was conveniently located across the street from an internet shop and down the block from a tienda selling ice cold cerveza. That evening we ate at Lindas, where a large crowd had gathered to watch Real Madrid battle Barcelona (in fútbol). Sheryl and I walked to town square and listened to a family marimba band until they quit (Absence of Mallets?). The rains came on the walk back (Lluvia got Male?).

The next morning we drove to Lagos de Montebello National Park. At the park headquarters we met with Adolfo and Don Roberto, who were familiar with bark beetle infestations in the Park. Don Roberto took us to an area with recent activity. There were a few currently-infested trees next to the road, plus a large area of dead trees in the forest behind the infested trees. Don Roberto then guided us through the area of mortality to some red and fading trees. Some of the pines had fresh attacks on the lower 3 m. While we checked the pines, Don Roberto had to leave to attend to other duties. After he left we realized none of us had brought a



Dendroctonus going tubing



The beetles exposed

GPS unit. Fortunately my excellent navigational skills came in handy, and I guided the group out to the road. We expected to find Kino, Pablo, and the van waiting for us by the original infestation, but long walks up the road failed to locate them. We then walked back to an area with shops and small food stands selling quesadillas, gorditas, and carne asada. It was crowded due to the holidays. We finally found Kino and Pablo and ate lunch.

Thursday afternoon we went with Don Roberto to examine some of the areas we worked in last year. Walking through the area it became obvious that the Park had implemented a suppression program. A large number of trees had been felled, including trees in the infestations we used the previous year. Some of the trees we had flagged as having fresh attacks in 2010 were alive with green crowns. Beetle attacks had occurred in the crown, but the whole tree had never been mass-attacked. We also observed some pines with red foliage on the perimeter of the treated infestations. We discussed the situation with Don Roberto. He had been responsible for identifying the infested trees, while another employee who was not very familiar with bark beetles had directed the suppression operation. It appeared that some infested trees had been missed, and we were not certain if the suppression included green trees or only red. We examined the forest around the treated sites but could not find any fresh activity. Using binoculars, we spotted a small pine with green foliage that had pitch tubes in the crown. We felled it using a hatchet and examined the infested area. SPB had attacked the main bole within the crown as well as some small branches. Some gallery had been constructed, but no successful brood production was apparent. Similar behavior had been observed the previous year.



A hatchet job



SPB's crowning achievement

Brian and Alicia returned to the park headquarters to try to meet with the Park Superintendent. Sheryl and I continued to search for active infestations. We observed more treated infestations and located some red trees which still contained brood, but no fresh attacks. When we returned to the headquarters we found that the Superintendent had not shown up due to more pressing matters.

That evening we had dinner on the square. There were numerous booths set up on one side to sell merchandise to holiday visitors. We listened to a local ska band while enjoying local adult beverages, which left us beatin' and brewsed.

Back at the Park Friday morning, Don Roberto led us down a road west of the headquarters. There had been considerable bark beetle activity in the area previously, and we observed numerous small infestations that had been felled. The infested trees had been piled and burned in most cases. It was good to note that the Park had stopped debarking, spraying, and then burning the trees. There were dead trees next to many of the openings, suggesting that some infested trees had been missed or small breakouts had occurred. We found one site with seven pines with activity at breast height, plus two additional trees with attacks in the crown. We decided to use this spot to train Alicia on techniques to monitor infestation progression. Another large area of pine mortality was examined, but there was no current activity. We also found an infestation in and around a cemetery, but it was such a grave situation we decided not to investigate.



We picked up a couple of funnel traps at Headquarters and went back to the site by the side of the road we had examined the day before. We set up one trap baited with frontaline, endobrevicomin, and turpentine. The turpentine was eluted from a Ziploc bag, and the endobrevicomin was placed several m from the trap. Sheryl and I took another trap through the woods back to the area with fresh attacks. This time I took a GPB unit and recorded the location. We installed the trap and baited it in the same manner as the first trap. I also located another group of fading trees with fresh bark beetle activity nearby and took another GPS reading. We then exited the woods and began walking back to the area with food and shops. Catering to the large crowds, we passed a couple of locals selling cerveza and tequila from ice chests (with no ice). To help stimulate the local economy, I ordered a lukewarm Tecate. It was surprising to learn that you could purchase a bottle of tequila for the same price as a beer. I resisted the

temptation, but it was apparent others had not, based on the staggering number of visitors. The van was not there to meet us at the “food court”, so Sheryl and I ordered quesadillas and waited. The other group returned, joined by some of Alicia’s in-laws on holiday, and a case of quesadillas was consumed.

Late that afternoon the Park Superintendent, Edda Gonzalez del Castillo arrived. We sat down to discuss bark beetle management at the Park. Also present was Fernando Moises Morales. The Superintendent informed us that the Comisión Nacional Forestal (Conafor) had declared an emergency situation in the Park, allowing them to suppress active infestations. The main treatment was cut, pile, and burn. Suppression efforts were carried out twice a year. The Park could cut all infested trees, including green trees. They were not including a buffer and were not felling vacated pines. We discussed when and why buffers are needed.

I discussed the need for a database to monitor infestation activity and suppression. On previous visits I learned the Park had maintained a database of bark beetle activity for about 10 years. The data they were collecting did not seem complete. I explained the core values needed for a good bark beetle database. The Superintendent indicated they were now collecting extensive data, including GPS location, numbers of recently attacked, currently-infested, and vacated trees, and the DBH and height of all infested trees. It appears they are now doing a good job of tracking bark beetle activity, though we will know more once we have a chance to see the database.

We also discussed detection flights. The Park could use a helicopter based in Comitán for the detection surveys, at a cost of around \$400. They had already made one flight, and we requested the flight information. We discussed the need to determine the optimal times for detection flights. Brian suggested that project funds could be used to pay for flights so that Alicia could locate active infestations for her field work. There also was discussion of coordinating the flights with other organizations with other needs to help offset some of the cost. Overall the meeting was productive and the Park management was very willing to work with the project.

On the drive back to Comitán, we were surprised to see some strange substance on the ground. As a southerner, I was unfamiliar with this particular white powder. In a scene reminiscent of a Coors Light commercial, a fluke snow storm had just passed through, depositing a light dusting of snow in a small area. We immediately pulled over (along with everyone else

on the road) to have a look. The niños (y adultos) enjoyed the scene, though no cerveza miraculously appeared.



It's snow wonder we stopped



Alicia, Kino, Sheryl, Martin, Pablo y Vania

Saturday in the Park, I think it was the 24th of April. We spent the morning training Alicia on data collection in active infestations. We marked all currently-infested trees in the active infestation we had found Friday morning. One tree was selected as a base pine and the geographic coordinates were collected. All other infested trees were mapped, recording the distance and azimuth relative to the base pine. The DBH and height of each infested tree was recorded, as well as the brood stage at breast height and one ladder height. Alicia will take similar data on a routine basis for several active infestations once her field work starts next year. While at the spot I began collecting beetles from the base of trees and the roots for Roger Menard, R8 FHP pathologist. He planned to examine the fungi carried by the beetles.

That afternoon we collected the beetles from the two traps we had set. Brian also collected bark containing live brood to take back to Tapachula. Alicia planned to use emerging beetles in her studies. I collected more beetles from the roots and base of the trees. Some of the beetles were 20+ cm down the roots. Most of the beetles collected at the training site appeared to be *D. valens*. Beetles collected at the second trapping site were smaller, and at least one pair appeared to be the new species. The gallery started at the root collar and then angled down toward the roots.



A rare sighting of a FHP entomologist at work



Cup O' Beetles

We drove back to Tapachula Easter Sunday. There were many dead possums on the road, but fortunately no bunnies. On the way we stopped at the Cascadas de Chiflón. Multitudes of holiday visitors were at the waterfalls, eating, drinking, and swimming, often at the same time. In the town of Motozintla they were conducting a prescribed burn on a hillside. We stopped at our usual roadside restaurant for dinner. They had remodeled most of the building, but had left the baños untouched (as did I). The cooks had to keep shooping chickens out of the kitchen (too many cocks spoil the broth?).



Brian and his Easter bags visit the falls



Sheryl enjoying the waterfall

Monday we unloaded the equipment. Alicia was still planning to go to Guatemala, so we discussed the objectives for her trip and future plans for the project. We also checked to ensure

our flights had been changed to the next day. That evening we were joined for dinner at the hotel by Jorge, who had returned to Tapachula to clean out his office and officially resign from Ecosur. Francisco Armendariz (Paco) also arrived, one of Gerardo's students. He was there to accompany Alicia to Guatemala. They were successful in locating infestations of *D. vitei* in Guatemala, and were able to bring specimens back to Tapachula for further studies. Sheryl, Brian, and I flew back to U.S early Tuesday.

On July 3, Sheryl Costello lost her life in a tragic climbing accident. She played an important part in the success of our visit, and we would not have been able to accomplish what we did without her assistance and input. She worked hard, laughed a lot, and groaned at my lame attempts at humor. She told me that the Mexico trip was a highlight in her career. We were privileged to have her with us.